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Atari revives 260ST with built-in drive

ATARI has revived plans to manufacture a low-cost version of its eagerly awaited 68000-based ST model, originally shelved in mid-May

It now seems that Atari will release a 256K version of its ST range – a 260ST – in this country, possibly for an autumn launch The machine replaces the 128K 130ST, plans for which were dropped in May

The new 260ST model will is launched in the US in September.

Atari will offer the machine in two versions – a stand alone model and one with built-in disc drive, similar to Commodore's two versions of the C128 micro with which Atari hopes to compete The model with disc drive will look slightly different from the rest of the range – the casing being much larger to accommodate the single 3½" 500K drive

'The 260ST and 260STD machines will cater for the low-end mass market Now that the 520ST is being sold in specialist computer stores, the new machine will be available from general retail channels," said James Copeland, Atari's vice president of marketing

"The stand alone model will cost $399 (around £300), and the disc version $499 (around £390) The machine

continued on page 4 ▶

Goonies!



Steven Spielberg's latest film The Goonies *is being released in the UK at Christmas US Gold will be importing Datasoft's computer game in September The game closely follows the film's plot involving a gang of children who bored with long weekends in their sleepy seaside town, take on a quest to find pirate treasure in a network of underground tunnels and caves pitting their wits against escaped convicts*

'Sir Clive Ltd' to head R&D

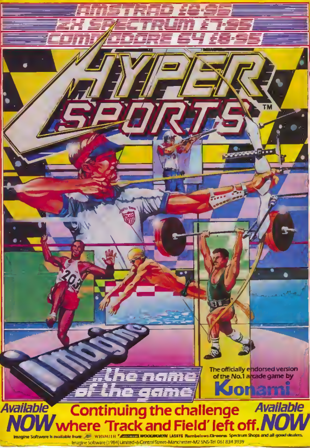
SOME of the confusion surrounding the announcement of Robert Maxwell's proposed takeover of Sinclair Research is beginning to clear

Conflicting reports have appeared of the role Sir Clive will play in the future of Sinclair Research and of his intention to set up a company of his own It now seems that Sir Clive's new company is being set up to facilitate his long term involvement with Sinclair Research

"Sir Clive will continue to direct the company's research and development, but he will do so not as an individual employee, but as a company – say, Sir Clive Sinclair Ltd," explained Nigel Searle, Sinclair's head in the US "The new company will exist to provide services to Sinclair Research, which will primarily be the availability of Sir Clive himself "

Nigel Searle also confirmed that Sinclair director Robb Wilmot will continue to head the search for external funding for a separate wafer scale integration company – to the tune of around £50 million However, there has been some question over the nature of the technology Robert Maxwell will preside over

continued on page 4 ▶


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Vol 4 No 27

EDITORIAL

Jack Tramiel's influence on Atari is becoming clearer. As Commodore always did under his command, Atari is developing the technique of keeping people guessing with a constant round of new micros being announced, then dropped.

What will the final line-up look like? Who knows – but Atari needs a low-cost ST and the 260ST is flavour of the week. At $499 for a 16-bit micro with 256K of Ram and built-in disc drive it certainly ought to keep Atari in the headlines.

The biggest problem any 16-bit home micro faces is the cost of software. The new wave of machines such as the ST, QL and even Amiga may be quite cheap to buy, but their programs will undoubtedly be a lot more expensive than the £5.95 we are used to paying for a top quality Spectrum program.

If say, Ultimate, releases a game for the Spectrum there are something approaching a million potential customers, the cassette costs around 30p to make, and their programmers only have to write 40K of code.

On the new 16-bit micros, there is no user base, the disc adds about £2 to the price and up to 256K of code is required.

Development times are bound to be lengthier, particularly where a particular title has been specifically commissioned and the quality of the conversion is all-important.

On the ST the Gem operating system is designed to allow software houses to maximise their development time by writing in C and transporting the same program across a number of machines. This is fine for home business and utility packages. But what about entertainment software? To be competitive it must make the most of the particular machine's features, and to do that it must be written directly in machine-code.

All this means we must expect prices around £25 which are unlikely to drop until there is a substantial user base.

Also, don't expect incredible software for the new machines straight away. To begin with the top Spectrum software will knock the socks off its ST rivals.

But, make no mistake, the ST is capable of a great deal more.

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ABC

56 052 copies sold every week (Jan-June 1985 ABC)

Popular Computing Weekly Tel: 01-437 4343

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Computer Trade Association Magazine of the Year

Crisis talks at Acorn continue

AS ACORN's financial crisis deepened last week the company was involved in urgent talks with the BBC, its major manufacturers, merchant bankers Close Brothers, and Olivetti, to try to put together its second rescue package this year

The company is understood to have discussed with the BBC the possibility of reducing royalty payments for sales of the BBC B and B Plus, and postponing payment of debts Since the launch of the BBC micro over three years ago, the BBC is estimated to have earned around £11 million in royalties from Acorn.

The company is also holding further talks with its major creditors, the three main manufacturers of Acorn's machines BSR International AB Electronics, and Wongs Electronics, to try to again reschedule its repayments of debts Only last February Acorn arranged its debts to manufacturers to be paid in instalments' up until early 1988

At AB Electronics, its chairman, Henry Kroch, said last week, "We are talking to Acorn about its present financial difficulties though as yet we have not made any firm decision" He also commented on the view that Acorn may withdraw from marketing machines entirely, and become solely an R and D company, "It is difficult to talk about new directions because there has not been a managing director since the rescheduling in February.

"The acting MD. Alex Uboldi, has spoken a great deal, however, about R and D prospects "

Henry Kroch also confirmed that production of BBC and Electron computers had been drastically reduced since Christmas

As Acorn's financial problems continue, Olivetti must now choose whether to inject more cash into Acorn by taking substantially more control over the company – at present it owns 49 3% – or to write off the £10 4 million it has so far invested

● Acorn has officially cut the price of its new BBC B Plus, according to one independent retailer "Acorn cut the price from £499 to £449 just a week ago," said a spokesman for Capricorn Computers in Colchester

Atari's 260STD

◄ continued from page 1

will both contain an internal modulator so that they can be used with both a television or monitor

'When the 260ST is launched, the operating software, that is GEM, Atari Basic and Logo will all be in Rom "

It seems likely that the 260ST will form the £400-£500 machine promised by Atari UK earlier this year (see *Popular Computing Weekly*, June 6), although it has not yet been officially decided.

"We in the UK are very keen to have at least one of these machines – though perhaps not both," said Atari UK's general manager Simon Westbrook 'It's a new decision taken in the States to definitely bring it out, but I think the idea of a built-in disc drive is a good one Amstrad has made everyone over here wake up to the fact that it is nice to have everything compact and in one box "

Atari has also fixed release dates for some of its peripherals in the US The 1M floppy disc drive is due out within the next month at $399 (around £300), and the 10M hard disc in August The company still hopes that its compact disc Rom player, which was shown for the first time at this year's Summer CES, will be available in the US by the end of this year

Compunet expands after 'teething troubles'

AFTER overcoming what it describes as "early teething troubles", Compunet now plans to expand its services during the rest of 1985

It has recently introduced an on-line-chat feature, where users can up-load messages Messages can be either general - addressed to all those on the system, or aimed at one particular subscriber Up to 15 pages can be sent for 1p per page

Also new to the network is a document transfer facility This means that word-processed files for instance, can be up-loaded into the system, and then down loaded by other users

We have now got over the problems we had in January and February when we underestimated the length of time people spent on Compunet, and some of the Commodore modems were too oversensitive to line noise' said Jane Firbank, editor of Compunet

However, some of the facilities announced last year such as the home banking and estate agency services, have yet to appear

"Home banking will be available early next year, and the estate agency service is temporarily in abeyance, though it's still a possibility," Jane continued

Amiga's US launch set for July 23

THE US launch of Commodore's much feted Amiga machine will now take place on July 23 The launch was originally planned for July 18

Commodore US would not, however, be drawn on a date when the Amiga would reach American shops, nor would it give a firm date for the British launch

' At the moment our priorities are the C128 and 900 machines – which we need to get out,' said Susan West of Commodore US ' The Amiga is still on for a January launch in Britain, but at the moment it is not at the forefront of our minds

Gargoyle to abandon Celtic myths

GARGOYLE GAMES is to forsake the Celtic background of its last two games, *Tir Na Nog* and *Dun Darach*, in favour of space

According to company spokesman Greg Follis, Gargoyle is working on a new series of "action adventures"

The title for the series of three at present planned is *The Siege of Earth* trilogy

The first game, *Marsport*, is set in the twenty-third century, and is due for release at the end of September It will run on the Spectrum and Amstrad, and will cost £8 95

The second game, *Fornax*, is planned for Christmas, with the third *Gath*, to come early in the new year

'Sir Clive Ltd'

◄ continued from page 1

"There have been suggestions that Sir Clive will hive off research into using bipolar techniques entirely seperately leaving Maxwell with the more conventional NMos technology " said a Sinclair spokesman "We really can't comment either way, since nothing of that detail has been hammered out yet After all, Maxwell is not yet chairman of the company."

Amstrad hits tape copy row

AMSTRAD has run into a legal storm over its dual cassette player which allows tape-to-tape copying

Last week the company – which itself has a major software division – was told by a High Court judge that its twin cassette recorder incited buyers to infringe copyright of music or software on cassette

The dual tape deck, introduced in spring 1984, of which around 25,000 have so far been sold is being advertised as capable of recording from one tape to the other at twice normal speed Amstrad received complaints from the British Phonographic Institute which protects the copy right interests of the music recording industry

Amstrad then applied to the High Court, seeking a declaration that its dual tape deck was lawful The judge declined to make that declaration

Amstrad intends to make an application for an appeal against the decision this week It plans now to carry on selling the machine, but not to advertise the product "It appears that the judge was concerned not so much with the nature of the equipment, but the way in which Amstrad advertised it" said Amstrad's solicitor Tony Willoughby

While dual tape recorders have been available here since 1979, Amstrad drew attention in advertisements to the ability to record at twice normal speed. In 1984, Aiwa withdrew from the market a similar machine which recorded from tape to tape at four times normal speed, in agreement with the BPI

Amstrad's packages contained a warning of breach of copyright notice "Two out the three people called by the BPI knew they were breaching copyright in recording," continued Tony Willoughby "It seems to be a comparable situation to the health warnings on cigarette packets people keep on smoking regardless "

Comms package and database for 464 users

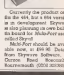
A NEW database, Viewfax 258, is being set up on Prestel specifically for Amstrad users The operation is being headed jointly by Lindsay Reid and Micronet 800 Micronet will market Viewfax 258

"We have a target date of October 1 to launch the system," said Lindsay Reid "We're aiming to have between 2500 and 3000 frames, so it will be large database by Prestel standards "

The only approved communications package for Viewfax 258 so far available is the newly launched *Multi-Port* from Skywave Software

Multi-Port comprises an RS232 serial port, which supports a range of baud rates, from 300/300 up to 9600/9600, a 24-bit parallel port, which can be used as a general purpose I/O port, and a sideways Rom card, which takes Skywave's *Multi-Com*

Multi-Com provides four colour text and graphics in 40 col mode a printer dump and save to tape or disc facility



Currently the product only fits the 464, but a 664 version is in development Skywave is also planning its own bulletin board for *Multi-Port* users called Skyvel

Multi-Port should be available now, at £99 95 Details from Skywave Software, 73 Curzon Road Boscombe, Bournemouth (0202 302385)

Letters

Back to Basic

I am considering buying a Tatung Einstein which includes as part of the package you buy a disc containing a version of BBC Basic

What I want to know is, when the BBC Basic disc is loaded, will it just run only 100 per cent Basic programs or will it run (once transferred to 3½ inch disc) any programs that the BBC runs?

Are there any other versions of the Basic language available for the Einstein – eg Spectrum, Amstrad or Commodore Basic?

Barry Barwick
12 Carslake Road
Collyhurst
Manchester 10

The answer is that compatibility with BBC software only extends to programs written entirely in BBC Basic. No other versions of Basic are, as far as I know, available The copyright for each other Basic variant rests with the relevant manufacturer.

Looks can kill

Your review of the Enterprise 128 stated that there existed only the one minor bug in the Basic Rom. Your reviewer missed a fatal bug in one of the potentially most useful commands which the Enterprise has

The command in question is the *Look* command whose syntax is as follows LOOK £channel,AT *x,y* (variable name) The purpose of which is to 'look' at the graphics page and assign to the variable the palette colour number at point *x,y* The channel part is optional, as is the AT part – the current cursor position is used instead What is not optional is the variable name, which if missed out will cause a spectacular crash.

The *Look* command, though, is useful for more than just graphics. It serves the same purpose to the text screen when channel = 102, but the AT clause cannot be used The usefulness does not end here as the channel system allows the command to be used to wait for a output from any channel, a good example being the keyboard. The Enterprise does not have a documented command to wait for a keypress but LOOK £105 a serves this purpose with the ascii code of the key being placed in variable *a*.

There are also some undocumented commands and functions hidden inside the Rom shown here:

Print Ver$	Will print a string telling you the version of Basic you have,
Print VerNum	Will print the version number of Basic,
Set Tape Protect On	Stops future files saved being copied using *Basic's Copy* command

Also in the Rom among the other commands, etc, there is the word *Font*, but I have yet to discover what purpose this serves I would be interested to here from anybody who knows

Duncan Sinclair
8 Tiptree Gardens,
Bearsden
Glasgow

Beatlemania

Aaargh (sob). We would like to express our utmost disgust and displeasure at the attitude of the obviously tone deaf philistine who had the audacity to suggest that the *Beatles* could be anything but the greatest purveyors of musical culture who ever have or ever will bring pleasure to the ears of humanity

The neo-hippies (eg Neil) are by no means representative of the phenomenom that was, and still is, the *Beatles* Such references show that the reviewer either has absolutely no idea what he is talking about or has had his head in a bucket for the past twenty-three years

Just thought we'd let you know

M Ward
A Smith
4 Farfield Avenue
Hepworth
Huddersfield
West Yorkshire

First Supertramp and now the Beatles. Is nothing sacred? I can't see a thing in here.

(Just for the 'record' the reviewer in question has *Sergent Pepper, The White Album* and *Magical Mystery Tour* and he says he has played them at least once.)

Free trip

Some American-based companies appear to be being over enthusiastic when it comes to marking up their products for sale in the UK

In the US a typical price for a Commodore MPS801 printer is \$179 (around £137) Over here the same printer costs £230 Also the US price for the Atari 1027 printer is \$219 (around £168). The UK price is around £249

A particularly good bargain is the SX64 Commodore portable micro with a US price of near \$749 (around £575) and a UK tag of £895

This means you could afford to collect it personally, have a brief stay in the US and still have some change left!

The only snag is you'll need to run any US micro you buy from a monitor because the US TV modulator is different.

J M Shearing
1 Dell Cottages
Log Mill Lane
Godstone
Surrey

What cost?

Reviews of programs costing £89 95 and £98 95 (June 20 issue), both for the QL, would hardly seem to be in keeping with a magazine entitled *'Popular' Computing Weekly*

Could future reviewers please stick with popular computers and affordable software

John Ure
9 Oak Avenue
Runcorn Road
Birmingham

Language packages always tend to be more expensive than other types of software The price of these QL programs is around twice that of an equivalent package on say, the Spectrum. Nevertheless, with so little software currently available for the QL I believe that the interest from QL owners justifies coverage of the occasional packages at this price.

Micronet competition

In conjunction with Thames TV's *Database* programme and Micronet 800, *Popular Computing Weekly* is running a four part competition to win free yearly membership of Micronet and Prestel

The competition takes the place of four clues to be printed in the magazine over four weeks each divided into two sections So what do you have to do? That's the first riddle

"Line parts A and B together
To map a final clue,
The answer to the crossword,
is where they all cross through."

Solve all the clues over the next four weeks and keep your answers with you instructions on what to do with the solutions and where to send them will be printed with the fourth clue.

To kick off this week, here is the first clue –

Clue 1

Part A

"The Roman's Venta Belgarium became,
The Wessex Capital during King Alfred's
reign,
In 1603 Walter Raleigh was tried,
In the City's gaol Thomas Hardy's Tess died."

Part B

CBTGMKL sounds Welsh already to
Trithemius

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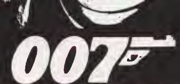
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Nothing wrong

Hardware *Precision Pixel Plotter* **Micro** *Amstrad* **Price** *£3 75 – £1.00 p&p* **Supplier** *PS Graphics, 161 Mountview Road, London, N4*

I remember the first pixel plotter pad I bought for the Spectrum – it was only after I got it home that I realised the the number of squares on the page didn't even match the resolution of the screen

Thankfully those days are long past. This Amstrad plotter has large A3 sheets divided into full screens of character and pixel squares, as well as having the appropriate scales printed alongside Beneath the screen map are eight smaller boxes you can use for design of UDGs

Although there is nothing startling or original in the package the manufacturer has managed to avoid getting anything wrong, and I should imagine it will be welcomed by all Amstrad owners trying to do interesting things with the graphics It is also very reasonably priced

You are presented with 25 sheets plotted to fit mode 0, low res, and 25 sheets to fit mode 1, high res (if only the software produced came in that ratio too) The sheets are just about transparent enough to be used for tracing of a well outlined drawing or photo

Inside the front cover is also a wealth of info related to the machine's graphics, including a full character set, with decimal and hex codes, a summary of the inks available and a very useful table I have never seen before concerning the codes that control pixel colour in mode 0

The only point of criticism is that, despite claims that it is designed for both Amstrad machines, one table that summarises the available graphic commands misses out the extentions to the 664 s Basic

Tony Kendle

QL with the DR effect

Hardware *CP/M 68K* **Price** From £355 (200K disc drive plus CP/M 68K) **Micro** Spectrum QL **Supplier** Quest International Computers, School Lane, Chandlers Ford, Hants SO5 3YY Tel 0421 66488

On paper the Sinclair QL looks like a credible business computer, yet so far it has failed to convince the business world because of its early reputation for unreliability its obvious non-standardness, and its lack of outstanding features when compared to more traditional computers Sinclair Research recognises the problems and is trying to overcome them with expensive advertising as well as the release of Version 2 of the Psion software

Quest International has attempted to get around these same problems by offering an alternative to the microdrive-based QDOS in the form of a floppy-disc system which can be used from QDOS, and hence with the Psion software, which can alternatively be used with CP/M 68K, a version of CP/M produced for the 68000 series microprocessors There are now several companies offering disc drives for the QL in a range of capacities Quest is unusual in providing one which requires the disc-driver software to be booted from microdrive rather than being resident in Rom, a design decision which was taken in order to allow alternative operating systems to be used. The first such operating system available, CP/M 68K, is a logical choice because it is written around the 68000 In principle, other possibilities exist for the future, such as Digital Research's GEM or a Unix derivative such as OS-9/68000 and Uniflex, but CP/M 68K is available now

CP/M has been around in one form or another for around ten years. It was first written for the 8080A 8-bit microprocessor to make use of floppy-disc technology and was the first successful machine-independant microcomputer operating system It soon became associated with the Z80 microprocessor and became the *de facto* standard for business computers Only the development of 16-bit microprocessors could shake CP/M from this position IBM were fully aware of the situation and wanted with the introduction of the IBM PC, to offer a system which was sufficiently close to CP/M to be accepted by most users and yet technically unique in order to dissuade competition. IBM demanded that many CP/M features be included in PC-DOS (which annoyed the author) and made sure that PC-DOS was sufficiently like CP/M to permit software producers to be able to transport their CP/M programs to PC DOS with relative ease

In the meantime Digital Research was busy upgrading the old 8-bit CP/M (now called CP/M 80) to run on the 16 bit 8088 and 8086 microprocessors and renaming it CP/M 86 This did not have the desired effect of challenging PC-DOS, and Digital Research have been trying ever since to regain their hold on the market by bringing out a series of CP/M operating systems, including the multitasking Concurrent CP/M 86 (which, in its latest version, claims a small degree of compatibility with PC-DOS), Concurrent PC-DOS for the IBM PC offering windows and multi-tasking along with improved compatibility with PC-DOS, CP/M 68K for the 32 bit 68000, and most recently Concurrent DOS 286 for the 80286

Thus CP/M 68K for the QL looks like it should be a good idea There are literally thousands of CP/M 80 programs and this would seem to offer a better chance for the provision of business software than QDOS Unfortunately it has not worked out quite like that to date Even the best of CP/M 80 software, such as *Wordstar* and *DBaseII*, although still very popular, is beginning to look a little sad when compared to the versatility and performance of the newer 16-bit only software, and few authors are interested in performing the conversion The vital American market has not responded to CP/M 68K and the number of applications available under CP/M 68K remains very small



CP/M 68K (in common with the other CP/Ms, PC-DOS, MS-DOS and so on) is not Rom-based and thus must be loaded from microdrive or disc each time the machine is switched on

Commands available once the operating system is loaded are concerned with handling files held on disc and microdrive Files can be listed, erased, copied to screen, and executed. A number of utility commands are also provided on disc or microdrive with the system which are in fact programs which run under CP/M 68K. These utilities include a 68008 assembler and a C compiler, which are of more interest to programmers than business users, and some advanced file-handling programs Of interest to some is the ability to read and write data to disc using the same format as the IBM PC This does not mean that programs can be transferred but the possibility exists for the transfer of data and thus, for example, the QL could be used at home to do simple word processing which could then be transferred to so office-based IBM

The provision of CP/M 68K on the QL seems unlikely to sway business opinion very much in its favour, principally because of a lack of applications The provisions for running programs in C may prove valuable, as many applications these days are produced in C, but this is only of interest to programmers

But business users require working application programs now

John R Cochrane

Hardware Reviews

New Converts

Hardware *Interface III* **Micro** *Spectrum & Interface 1* **Price** *£39 95* **Supplier** *Micro Centre, Bridge Street, Evesham, Worcs*
Hardware *Microdriver* **Micro** *Spectrum & Interface 1* **Price** *£44 95* **Supplier** *Mirage Microcomputers, 24 Bank Street, Braintree, Essex CM7 7UL*

In terms of reliability Spectrum Microdrives have now somewhat proved themselves But if you invest in one, what do you do about your existing tape based software and indeed the dearth of new microdrive based material? What use is high speed loading if there's nothing to load

For people who aren't high powered machine-code programmers able to instantly disassemble code there are now two hardware products claiming to do the job for you

They both use a similar principle of operation, using non-maskable interrupts This is a line unused on the Spectrum, which, when normally triggered, resets the machine. These devices use this. In conjunction with special Roms of their own to dump the whole of memory at any time onto cartridge, having waited for the game to load.

The first one examined is the Interface III from Evesham Micro Centre, costing £39 95. It comes in the usual sort of black box that plugs into the Spectrum edge connector, with a push button switch on the top Inside, there is a simple Pcb, with just eight chips on it There are seven standard TTL, for the decoding and Rom paging There is no through connector, but as you only have to connect it once when you convert a program, this should not be a problem. To convert anything simply load it as normal, then at a suitable point press the button It then copies the entire machine Ram and registers on to a cassette, in a special format Next, you have to reset the machine, then load in the conversion program from cartridge or cassette This takes the special format tape and converts it into a couple of files on the cartridge To use, simply switch on, put the cartridge in, and type *Run* in the usual way The Interface III is only necessary for the first stage of the operation – it doesn't always need to be present

There is one snag with the Interface III – it has to use a little Ram for a scratchpad while loading from cartridge and it uses a small section of the screen This can cause difficulties with programs that do not re-draw the screen, or those that contain 'invisible' machine code, requiring some trial and error on the exact timing of the button press

The rival system is the Mirage Microdriver, costing a fiver more at £44 95 While the principle is similar, there are quite a few differences The box is similar to Interface III, but with a through connector, as it has to remain in place all the time

Inside there are just three chips – a 4K Eprom, 4K Ram, and a Pal for the decoding The inclusion of a Ram chip gets around the problems of the Interface III.

To use it the program is loaded in the usual way from cassette, then at any time you like you press the button. A small menu appears in the top 3 lines of the screen, with 5 options The first one you select is normally *Save* which dumps the machine out onto a cartridge directly The part of the screen used for the menu is restored before the Save, and the internal Ram is used for buffering, so no corruption takes place.

To load a converted program is simple – just switch on, press the button on the box, choose the *Load* option, and give it the filename The machine state is stored in a one specially coded file, of just over 48K in length, so you can only get one per cartridge Both devices worked well, though I preferred the Microdriver, because of its ease of use

Andrew Pennell

Minter Mania

Llamasoft Software, 49 Mount Pleasant, Tadley, Hants

The release of a Llamasoft game is always an occasion of universe shattering celebration. Notorious for endless whackiness, graphic genius and inventive gameplay, Jeff Minter's games often stretch the 64 to its limits. The time was bound to come, though, when such is the great man's inventiveness that he would develop a game so far out that it was quite impossible for humans to play. This, Mama Llama, is it.

You control a family of three llamas and a telepathically directed killer droid. The droid is used to neutralise attacking baddies which supposedly come in all shapes and sizes.

Since you can apparently select which level you want to play through the phases, Mama Llama is more than just a straightforward zapper. But in fact it's so devilishly complicated that it will take a three headed Vegan slime octopus to work it all out. I'm not even going to try to give this a rating for gameplay — if you want a real challenge just go out and buy it.

Program Mama Llama 64 **Supplier** Llamasoft **Price** £7.50
Graphics * * * * * * * * **Sonics** * * * * * * * * **Gameplay** Glurk!

Commodore Horizons

MAMA LLAMA (Llamasoft) for Commodore 64. Another one from the Jeff Minter stable and if your brain works on the same wavelength as his, you will love this game.

Nobody could accuse Llamasoft of skimping on the instructions, there are "acres" of them and trying to absorb them all and loading the tape takes a very steady nerve.

The trouble is my brain refuses to accept all these instructions but nevertheless I got the tape programmed in the computer. What I saw looked good — the graphics were superb — but I did not understand any of it. I think I would rather try to remember word for word the complete works of William Shakespeare in Norwegian.

Sorry, Jeff, this is not my game, but I am sure that your fans will adore it. If you do decide to buy it (don't let me put you off) you will need, as you will with all Llamasoft games, a joystick. That I did discover.

Thetford & Wattons Times, Norwich

Llamasoft Jeff Minter's latest game is called **Mama Llama** and is one of the most colourful games I have ever seen. It has over a 100 different levels and involves both skillful play and strategy if it is to be mastered.

An excellent game that should do very well once the distributors latch onto it.

Computer Games & Systems Retailer

Camel Ye Faithful and knuckle down to a session of JEFF MINTER'S newest smasherooni—and a continuation of the Ungulant Saga, TONY TAKOUSHI reports...

JEFF MINTER's pilgrimage to Peru last October was the inspiration for his latest game called *Mama Llama*. It features a (surprise!!) mother Llama and her two babies, all of whom are being attacked, in the best Minter tradition, by aliens.

The game follows the Minter style of a good shoot 'em up but uses smooth scrolling backdrops to good effect. The scrolling backdrops are a first in that they are very colourful (unlike Tony Crowther who sticks firmly to four background colours).

The overall aim is to survive and protect the baby llamas, who mimic their mothers every action so as she loves and spits at the aliens so do they! You have many sectors to patrol, with scanners within each section to help you locate any approaching nasties.

Following on from *Sheep in Space* and *Ancipital*, Minter has further evolved his gravity routines to allow incredible permutations on the alien attack patterns and on the movement of the llama. If you manage to clear a sector a warp gate will open to another sector, but you can choose to stay where you are a little longer.

Other sectors include the Inca City, Egyptian City, Space City, Rock City and Inca Homeworld — the gravity and viciousness of the aliens being suitably altered for each.

One of the most outstanding features of Minter games is his increasing ability to make the game feel good to play. When you pick up the joystick it feels "true". Real gamers will know what I mean (the rest of you will just have to work at it!)

At the time of review the game was only half complete and had to be reviewed as such due to print deadlines but even semi-complete its quality stood out and I look forward to seeing the finished item.

Big K, London

A shoot 'em up with no bullets

ONCE upon a time computer games either derived from amusement arcades — which meant they consisted of shooting up aliens — or were adventures, which involved reading a lot of text and reacting to it.

But now, how do you classify **Mama Llama** (Llamasoft, £7.50), Jeff Minter's latest opus for the Commodore 64?

It is an arcade game — of sorts. But it's not like other shoot 'em ups. There's none of the usual approach of "make one mistake and you're dead". You don't even work your way through waves in the time honoured way.

Ever since his first speedy variations on Centipede — Laserzone and the like — Minter has been rethinking computer games. He even altered the playing area, as in Sheep In Space with its planetary surfaces at the top and bottom of the screen.

Minter, who coined the phrase "mega game" to describe his programs, understatedly calls his latest "rather unusual".

Mama Llama may be his masterpiece — a whacky surrealist piece of lateral programming. It's a shoot 'em up with no bullets. And the player can choose at what point he or she even enters the game, and can even move on when the going gets too tough — which happens when Rory the savage guinea pig makes his biting entrance.

You control a mother llama and her two children, protecting them from danger by means of a killdroid which removes obstacles by touching them.

Well animated with good baroque and roll musical accompaniment and excellent varied backgrounds for you to walk through, the game will especially appeal to fans of **Revenge Of The Mutant Camels** — a great game now also available for the Atari at £7.50.
Keyboard by John Walker

North Western Evening Mail, Barrow-in-Furness

LLAMA MIA

There comes a time when every reviewer has to own up — after reading through the many lines explaining the plot of *Mama LLama* several times, I am still baffled. This is what I've got so far: the plot, incomprehensible, involves simulated video games on a planet called Led Zepp IV (was that the one with *Stairway to Heaven* on it?). first part of game is a grid in which you choose what planet and how many aliens you want to fight. Part two sends you to the planet where you defend your Llama offspring from attack from various kinds of alien, one of which looks like a buffalo. However, there are things called Antigenesis devices and Retrogenesis devices which seem to be the Minter equivalents of smart bombs in that they reduce the number of aliens in certain ways. There appears to be all kinds of strategic elements to the way the game is played and it zaps like crazy. Beyond this, I don't dare to comment.
Program *Mama Llama* **Price** *£7.50* **Micro** *Commodore 64*

Popular Computing Weekly

Watch out — this guinea pig bites!

John Walker

MAMA LLAMA

From the wagging ears and tail and nodding heads and curtsies of llamas on the opening screen, *Mama Llama* may look like just another tame beast with her two babes. But not Jeff Minter behind it.

Rather, the plaster on one of the babe's cheek in the cover group shot is more an indication of this hazardous, fast-paced trauma. And then there's the small but threatening KillDroid that hovers overhead to protect this cozy family. To do any good, however, you have to master it's inertia controlled movement — no easy feat if it's possible at all.

As usual, instructions are very involved even not considering the detailed account of what inspired Minter to produce his latest ungulates. Your choice of playing modes, difficulty, scenes, etc. are numerous since you pick from a grid Minter calls it a "totally amorphous wave select system".

The harrowing pace of Mama Llama is daunting even in the beginner phase but substantial practice sharpens your skills. Meanwhile the changing scenery, situations and attackers keep the player occupied. **This is a toughie probably best conquered by dedicated Llamasoft fans rather than those just seeking an introduction to Minter's mind.**

Considering that the action is good and Mama and the player could become rather attached to Mama and her babies. All around, it's off the wall enough to keep the experts amused and glued to their joysticks.

Type of game Arcade **Fast loader** Novaload **Graphics** * * * *
Sound * * * **Playability** * * * **CCI Rating** * * *
Price £7.50 cassette

Commodore Computing

Eye of the Tigress

Plotting to kill ***Martin Croft*** *exposes the operation of the 007 games' creators, Tigress*

There was a time when computer games really were written by teenagers who came up with wacky ideas, worked out by trial and error just how to implement them, and then programmed the whole thing themselves – usually in the gaps between various sets of exams

More often than not, they would also set up companies with really strange names, publish the games themselves, and go quietly bust.

Those days are over. Now specialisation is the name of the game One set of people designs the games, another does the programming, yet another the marketing – and a completely different set rakes in the money

One of the best examples of this new type of product is the latest Domark game, *View to a Kill* Domark are publishing it, a company called Softstone did the programming, the game design was by Tigress Marketing, who produced a storyboard based on the script of a film featuring a character who was originally created over 30 years ago

Tigress Marketing used to be in marketing – no surprise there But now they specialise almost full time on writing game scenarios for people who can't write their own

Tigress is really three people – Beth Wooding, David Bishop and Chris Palmer Listening to them, you get the impression that the most important thing about a game is the design of what happens in it – the story if you like

The rules, the permissible actions, the victory conditions, the penalties all take precedence over the mechanics of programming

As Chris put it, "we do the storyboarding to a level where we can give it to a dumb programmer – technically brilliant, but no creative thought "

"Software houses,' Beth chipped in, "got their fingers burnt because they were trying to do too much – often they had programmers who just couldn't write games "

View to a Kill started life back at the tail end of 1984 Domark, with whom Tigress had worked in a marketing function on *Eureka*, asked them to prepare an initial treatment for a game based on the latest Bond movie

"Domark had contacts into the company running the rights for Bond," Beth recalled "We had to do a lot of work producing the storyboard to convince the people at Pinewood to give Domark the rights."

"Pinewood were reticent at first, but the storyboard impressed them – though they didn't know what the computer game was all about

"I think the thing which clinched it for us was that we weren't just using James Bond to sell something which wouldn't sell otherwise," said Beth pretty convincingly

"We took quite a gamble," Beth continued "that's the thing about storyboards there's nothing before it. We have to take all the risks "

Tigress started risking all on the project last October – "Pinewood didn't even have a film!" Chris wryly observed.

"A lot of the game was written on the back of the film storyboard," he said "The script wasn't much help – it's only when you read a Bond movie script that you realise just how little dialogue there is in it "

Dialogue may be sparse in a Bond film – the finer nuances of human emotion are left to Roger Moore's eyebrows – but you can be sure of plenty of action sequences Tigress identified six which they felt had potential to be turned into computer games

Of the six, only three are to be found in the final package These are *Paris Chase*, *City Hall* and *The Mine* The ones which didn't make it were a ski run game, with Bond simultaneously taking on a downhill slalom and enemy agents, a horse race game ditto but the Grand National, and a fire engine game in which 007 steals a fire engine and, for a change, outwits the police

The main reason for only half the proposals seeing the light of day seems to have been time From the first idea to producing the final product took about six months – fairly speedy for three games, an intro and an outro, on both Spectrum and Commodore – ten separate programs in all

Having identified potential games, Tigress then prepared 'treatments' of each of the six These treatments all on paper rather than screen – included basic screen designs, what players would have to do and how they could achieve these objectives

"We put in the game play first, then we add the nice touches that the computer can produce," said Chris

"Previously, games were written by programmers – they'd find a new utility, and then write a game around it More often than not, you load up a game and it has great scrolling or great sprites – but that's it Our job was to make sure the whole thing works as a game "

"Then we go to the programmers and say we want a map so big, with eight levels of animation on the sprites five levels of depth – that sort of thing "

Having handed over the final design treatment to the programming team,

The Tigress team

Softstone, Tigress' involvement didn't end there

"I hate to think," said Beth, "how much time we've spent journeying to Camden." It's a long way from Putney

"At the start of the project, we didn't have a programming house, so we couldn't get their input Softstone only got involved later on " That meant they were forced to make some assumptions which later caused problems For example, in the *Paris Chase* game, Bond has to manouevre his car through the streets of Paris

"We wanted a fairly accurate representation of Paris on the on-screen aerial view – but when the programmers had a look at it, they said no way They couldn't do smooth scrolling and diagonal streets at the same time."

Another restriction facing the design team was that James Bond could never be killed

After all, as everybody must know by now, 007 is indestructible No matter how serious the situation he may find himself in, he always escapes

That meant standard arcade punishments like the loss of a life were ruled out from the start. As a result, Tigress incorporated the daze factor – when the player does something wrong, Bond suffers a time penalty If Bond fails to save the world (unthinkable!) before time runs out he gets another chance. It's only a game

Rather neatly, the time factor is included in the code the player gets after completing each game – load the code from game one into game two, and the program knows just how much time Bond has left in which to save the world The better a player does on the first two



(l to r) Beth Wooding, Chris Palmer, David Bishop

games, the more time 007 can spend in the silver mine in game three

View to a Kill – the finished game – is very much a product packaging operation, something Domark excels at. It would be uncharitable to blame Tigress for the games' limitations – they had a job to do and they did it.

They are, however, working on other projects, some of which appear as constrained as the Bond game. Others however, seem to offer a designer more scope – many of these are game ideas which one or other of the Tigress team has just suddenly come up with.

Most of them were top secret, since they involve complicated licensing deals – however interested in imagination Beth, David and Chris might be, they understand the advantages of product recognition.

Currently, they are working on a design for a game based on the BBC TV series *Yes, Minister*.

It will be a largely text adventure requiring strategic decisions from the player. The objective, in best Civil Service tradition, is to ensure that absolutely nothing is achieved.

Mosaic is to publish the *Yes Minister* game, while the programming is to be by the Ram-Jam Corporation, better known for their text and graphic adventure *Valkyrie 17* – hardly dumb programmers.

Tigress has also submitted a design for a Duran Duran game, or rather a series of games – one for each of the band appropriate to his instrument. That however is still up in the air – "We're waiting for their manager to get back to us," said Beth.

Explaining to the band how their music is going to sound on the Spectrum will be an interesting marketing exercise.



Dashing

Program *Dynamite Dan* **Micro** Spectrum 48K **Price** £6.95 **Supplier** Mirrorsoft, Maxwell House, Worship Street, London EC2A 2EN

Fade up *William Tell* overture. Announcer (in dramatic voice): 'Will the dastardly Dr Blitzen's plans for world domination succeed? What of his assistant, the devilish Donna? Only one man can collect the eight sticks of explosive and blow the safe before escaping in his trusty airship, but where is he? Where is *Dynamite Dan*?"

Yes, the Spectrum has a new hero, cast in the mould of all those dashing do-gooders of yore, those Fearless Fosdykes who defeated fiends like Blitzen before dashing off to the club for cocktails. And that's one of the features that sets this game apart from other anonymous alliterative imitations of Matthew Smith's *Miner* – the hero and villain show character.

There are also objects to collect for points, extra lives or special effects, such as the oxygen that gives you a few seconds to bop the baddies with impunity. There's also the need to maintain energy by eating food, but most importantly there's the sheer complexity of the routes around the screens and the initial uncertainty of what you'll find when you step onto the next one. It all calls for split second timing and pixel accuracy and I found it near impossible to get very far... but then again I remember most people said that about JSW at first.

John Minson

Painless

Program *Spectrum Assembly Language Course* **Micro** Spectrum **Price** £12.50 **Supplier** Glentop Publishers Ltd, Standfast House, Bath Place, High Street, Barnet, Herts EN5 1ED

I've said it before but it's true, taking your first step into assembly language is a leap into the dark. What the novice machine coder needs is a guide to dispel the terrors of all those *LD*, *POP* and even *JR NZ* instructions. Given this friendly hand it doesn't take long to realise that assembler itself isn't as complex as it looks, in fact it's extremely logical. The main problem then is how you use it and what you use it for.

This 'Dr Watson' course consists of a book and tape in one box. I was initially disappointed to find the opportunity to illustrate the tuition with the program has been missed, apart from decimal/binary/BCD/hex conversion. But strictly low tech (ie, paper and ink) lessons hardly matter when they're as clear as this. Martin E Thompson has written a no-nonsense introduction to the world of mnemonics, moving through them in a sensible order and not becoming involved with chip architecture or hex until absolutely necessary. In addition there are copious appendices including several ROM calls.

Backing up this is the assembler itself which is clear and efficient to use. There are a couple of niggling typographical errors in the book but the package price is extremely reasonable. While it won't teach you everything about assembler it will get you started with minimal pain.

John Minson

Satanic maze

Program *Go To Hell* **Micro** Spectrum **Price** £6.99 **Supplier** Triple Six, PO Box 190, Maidenhead SL6 1YX

Something wicked this way comes. There is Germanic lettering with blood dripping from it on the cassette box, the game is set in hell, the company's name is Triple Six, number of the beast. It can mean but one thing. Devil worshippers? Worse! Heavy metal fans!

Somewhat surprisingly, for the jaundiced reviewer, behind all this satanic kitsch lies a reasonable game. More surprisingly it belongs to that 'dark ages' genre, the maze game. Of course it's bigger than mazes used to be (60 screens) but the quest to find objects, in this case holy crosses, remains the same.

What brightens this one, albeit with a sulphurous light, is the landscape of Hades, with passages lined with suffering souls, some just wide enough for your tiny figure to move through, opening on to clearings where the damned (no, not the band) are having their heads sawn in two or being stretched on racks. Triple Six are obviously aiming for some press notoriety!

While it's not quite the 'nasty' they claim, it's graphically gory and gruesome and your battle against the forces of darkness, only defeated by the crucifixes you throw, is fairly addictive.

I'm sorry to say it's about a pound too expensive though.

John Minson

Ambience

Program *Mordon's Quest* **Micro** Amstrad **Price** £7.95 **Supplier** Melbourne House, Castle Yard House, Castle Yard, Richmond TW10 6TF

Mordon's Quest is intended by Melbourne House to be a sequel to the old *Classic Adventure* chestnut. It retains some of the major locations of the original but sets a new task – to retrieve the missing bits of Mordon the Ancient One's immortality machine.

True to the original, this is a text adventure pure and simple, the puzzles are difficult and the only concession to graphic effects are the multicoloured division of description, input, objects owned and so on.

There are 150 locations and the descriptions are rich and evocative. The opening section is that mysterious old house featured in the *Classic Adventure*. The vocabulary of 500 words is enough to ensure that you can spend a very, very long time indeed puzzling over what to do next.

Text analysis is relatively simple, being restricted for the most part to two words phrases like *Go South*. *Score* tells you how you are doing.

Later in the game the blurb promises 'a fantastic future world with perspex domes, flashing lights and ambient music'. It adds deadpan, 'it's all very mysterious' – it certainly is. What the ancient elves of Tharg are going to make of ambient music I know not.

Graham Taylor



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Software Reviews



Hot graphics

Program The *Captive* **Micro** Commodore 64 **Price** £1.99 **Supplier** Mastertronic, Park Lorne, Park Rd London NW8

Unwittingly, you have wandered deep into the Glen of the Coloured Corpses You find yourself in the streets of a village set in a landscape which is surrounded by a dense forest Now the trouble really starts in *The Captive*

The game action is displayed in a window covering most of the top half of the screen. As your joystick-controlled adventurer moves, the landscape scrolls around him While exploring, he will come across various strange items and buildings By pressing the fire-button you can access a menu which allows your hero to pick up, drop and use items. Careful planning is needed, though as he can only carry three objects at once He will also have to avoid the deadly plague carriers They pop up all over the place, and contact with them means sudden death

It's obvious that to escape you need to work out how to use the many items which are scattered about the place For example, if you've found the blue scroll and a typewriter, you can type your name on the scroll and it miraculously becomes a flying licence!

The way the computer handles all this with the joystick is really quite neat The graphics are also pretty hot, with a good screen-display. Gamesplay is definitely for those who enjoy adventure-type puzzles, but it's easy to get into and fairly addicive Mind you I really hate those plague carriers!

Tom Hussey

It's official

Program *Monopoly* **Price** £9.95 **Micro** Spectrum 48K **Supplier** Leisure Genius, 3 Montagu Row, London W1H 1AB

At last an official version of this classic board game from a company which has specialised in such conversions At least two previous (unofficial) versions have existed but were criticised because one only showed you part of the board providing no overview while the other revealed the whole board in such tiny detail it was difficult to tell what was going on

Leisure Genius has solved this problem with a perspective board view upscreen and below it the strip of properties following the player's current position A lot of care has been taken with the 'feel' of the game, when the dice are thrown you see them roll and better still, when property is auctioned not only does a hammer descend with a bang but the dice jump as it lands Player messages appear in the centre of the board and once you're used to looking there it's a sensible arrangement

The program provides a complete and standard game, the computer playing any of six players, and its strategies seem strong The documentation on the program could be better and several points may prove confusing or result in crashes until you've played a couple of times I also found the absence of all those little cards and banknotes removed some of the fun, and it helps to know how the property is grouped in the real board.

However, though I consider *Monopoly* primarily a social game, I'm sure budding property developers will be delighted now they can get their fix of capitalism any hour of the day or night

John Minson

Bat or Bowl

Program *Graham Gooch's Test Cricket* **Price** £7.95 **Micro** Commodore 64 **Supplier** Audiogenic, PO Box 88 Reading, Berkshire

There are several cricket simulations around for the Commodore 64 One of the better ones is *Graham Gooch's Test Cricket.*

It's better because graphically it's fairly sophisticated, with large well animated sprites instead of the usual matchstick men

You can choose your own teams and either bat or bowl – there is an ingenious use of the joystick to give you quite a wide range of both bowling and batting options It is possible, for example, to play either agressively (with its attendant dangers) or defensively if the score looks in your favour

When in bat the fire button determines the timing of each stroke – it requires a good deal of skill not to give away an easy catch or, worse still, witness the wicket crumbling behind you.

If you want a cricket simulation – and it is the right time of the year – then so far this is the one to go for

Graham Taylor

Addictive

Program *The Wild Bunch* **Micro** Amstrad **Price** £2.50 **Supplier** Firebird Software, Wellington House Upper St Martin's Lane, London, WC2H 9DL

One of the rising stars of Firebird's silver catalogue is without doubt *The Wild Bunch*. It's a simple, well implemented, idea that, although not a classic, clicks into an engrossing and addictive game just what a cheapie should be

Whilst billed as a 'wildwest adventure' it relies more on strategy elements than a conventional adventure You are presented with the scene where you are, wrongly, accused of murder Whilst pursued by the Pinkerton Agency you must identify and capture the member of the wild bunch who did the foul deed. This involves travelling to various towns where you can challenge strangers to a gunfight. Various facial characteristics relate the figures to wanted posters on show in the sheriffs office and part of the strategy element relies on keeping tabs on and identifying, the correct one Picking the innocent town mayor for a shoot out does little to raise your social standing The telegraph office also provides valuable information on the whereabouts of the bunch and of the Pinkertons

Several towns need to be visited in order to solve the problem – travel and sustanance both need money and the best way to boost this is in the poker games of the saloon, if you can avoid getting too involved with the firewater

It is predominantly menu driven, the graphics are effective additions to the game, the shoot outs are particularly good, and both these, the wanted posters and the poker cards actually contribute to the game, which is a welcome point.

Tony Kendle

One-Key

Program *The RefQL Database* **Price** (see below) **Micro** QL **Supplier** WD Software, Hilltop, St. Mary, Jersey, Channel Islands

The *RefQL* database is a file of data to be used in conjunction with Psion's *Archive* – note, Version 2, it won't with Version 1 The tape also contains a little program to be booted in before the main data, and this program acts as a "front panel", aiding in the retrieval of the data by the user

The main facility that this program offers the user is "one-key" commands As you know, *Archive* requires the user to type in commands such as, *Find, Order, Search, Next, Continue* and so on, in full, which can be rather tiresome when a large database is being used All one has to do with WD's routine is to press the first letter of the command, thus F for *Find*, N for *Next*. You can use this program with your own files, thus making life a lot easier (but, you could also write a similar program yourself in half an hour)

The main program is a database of references to the QL in British magazines, including the house journal of the QL User Group As such it's a pretty hefty piece of work – the database is now in its third update and currently contains 500 records Of course, this is very handy to you if you want to track down an article on, say, QDOS that would be extremely useful if only you could remember where it was published! You can, though, be rather more cunning or sophisticated than this, using the data, for example, to find out the best magazine to send review copies of your latest *Jet Set Willy* killer, or which author appears to be an expert in a certain field It would be perfectly possible for you to update the records yourself, but WD offer to do the updating for you (supply you with the latest version) for the differences in price plus postage – very reasonable

Although there was some corruption evident on my copy with many of the records displaying as a meaningless jumble of graphics and half-words (I assume this is not a normal case), and although some of the on-screen prompts get permanently overwritten by system messages, nevertheless the package is good value, if only because it will save an awful lot of typing

WD maintains a unique price structure, allowing the purchaser to "mix 'n' match" programs, paying a "medium" charge plus a charge for each program recorded on the medium, so see WD advertisements for details or contact them direct.

Tony Bridge

Topical

Program *On-Court Tennis* **Price** £10.99 **Micro** Commodore 64 **Supplier** Activision UK Inc., 15 Harley House, Marylebone Road, Regents Park, London NW1 5HE

With Wimbledon capturing the interest of sports fans everywhere, Activision have chosen a good time for the release of their simulation, *On-Court Tennis* Do you fancy a game against John, Bjorn, Jimmy or Ivan? Each of these players have their strong and weak points, so it's important to choose your opponent with care. It is also possible to select which type of court to play on – grass (fast), hard court or clay (slow)

The court is displayed as if you were sitting in the commentary box behind the server, with the graphics big and clear No ball-boys, umpires, touch-judges, photographers or crowd to clutter up the screen here

The first thing you have to master is how to serve. The player automatically throws the ball up, and you have to time your swing and direct the stroke. Quite tricky (just like real tennis!) During the rallies, the computer positions your player in the correct place to make a shot Then you actually make the shot by one waggle of the joystick: drop shots, slice shots, flat shots, top spin shots or even lobs are possible

Timing is crucial as the timing of your swing determines in which of the 16 directions (angles) the shot can travel When the computer or your human opponent tries a lob shot, you automatically go into a special "smash-mode". This enables you to overhead smash the ball into any part of your opponent's court Smashing the ball into the corner leaving the computer stranded is just great! It looks really impressive, too

The computer also boasts something called "floating intelligence" – as you get better, so does the machine Can't be bad – but it's the great control you have over the shots that really makes the game A good buy – even professional tennis players will enjoy this game

Tom Hussey

Un-English

Program *On-Field Football* **Price** £10.99 **Micro** Commodore 64 **Supplier** Activision UK Inc., 15 Harley House, Marylebone Road, Regents Park, London NW1 5HE

Sporting simulations seem to be all the rage at the moment. Programs on Basketball, Squash, Baseball, Boxing and Cricket are pouring from every door of the software houses Now, Activision is getting in on the act with a number of titles

As you might guess *On-Field Football* isn't about good old British soccer, but the American equivalent I shan't begin to go into the complex rules, but suffice to say that it's vaguely similar to Rugby, with forward passing The program allows you to take on the computer or a human opponent (if you've got an extra joystick) After juggling through a few menus and choosing your team, play begins

The action starts with the customary kick-off Instead of the usual 11 players (from a total squad of 49), you only control four, but this is about all you can manage Before each play, the team huddles, and you have to choose your attack plan. This involves selecting the formation and the running patterns of wide receivers, tight ends, etc – all within 30 seconds When on defence, you must choose your pass coverage and rushing plays Eventually, the actual play starts and you are able to try out your attack plans

The so-called player perspective graphics aren't exactly spectacular, but they are adequate The game-play realistically covers most aspects of American Football time-outs, substitutions, field goals – it's all there

Being a Channel 4 American Football fan, I was just about able to cope, but a novice would probably find the comprehensive instructions and game-play very bewildering Still, I've always wanted to be a quarter-back

Tom Hussey

Jumbling along

A sliding block puzzle to while away those hours between programming for the QL by *R Forsey*

This is an adaptation of the well known sliding block pocket puzzle. In this version the computer draws a picture on the screen and then jumbles it up, all you have to do is to restore the jumbled up picture to its original state.

To restore the picture you have a cursor. This is moved around the screen using the arrow keys. To move a piece into the black space, the cursor must be placed on the piece you wish to move. Then press the space bar and the piece will move into the black space.

There are two other keys that can be used, *Enter*, which will move the puzzle five times randomly, and *Escape*, which will finish the game.

Proc Start – sets up the variables and screen layout. It then acts as the control procedure for the program.

Proc Jumble – jumbles up the pieces. It is called with a parameter *Num*. This tells the procedure how many times to move the pieces. It works by generating random numbers which are interpreted in the *Select On* routine. This determines if a piece is moved left, right, up or down.

Proc Selx – finds the pixel *y* coordinate for the scrolling window.

Proc Sely – works very similarly to *Jumble*, but instead of using random numbers it takes them from the user.

Scrl, Scrr, Scru, Scrd – each procedure checks if the conditions are correct to scroll, then calls *Selx* and *Sely*. Creates a window #3 in the correct position, and then scrolls. Increments variable *MO* (moves) by 1. Sets new position for black space.

Proc Curs – this contains the main loop which reads the procedures *Temp* and *Slide*.

Proc Drawpic – this contains the main loop which reads the keyboard and moves the cursor.

Proc Slide – draws the word SLIDER and can be called with parameters *X1* and *Y1*, which give the coordinates for the beginning of the word.

Proc Temp – draws the temple using procedures *Box* and *Roo*.

Proc Roo – draws the roof of the temple.

Proc Box – draws a box with *X,Y* for the coordinates and *X1,Y1* for length and height.

Proc Fin – the finishing routine. Tells you how many moves you had and asks if you want another go.



Star Game

```
80 START
90 DEFine PROCedure START
100 MO=1
110 WC=4:WY=Y
120 MODE 8
130 WINDOW 512,256,0,0:PAPER 0:CLS
140 WINDOW 300 200 30,10:WINDOW#2 300,200,53,9
150 WINDOW#4,460 46,25 2,0:PAPER#0,0:INK#0,6:CLS#0:BORDER#2,2,4
160 PAPER#2 0:CLS#2
170 PAPER 0:INK 7:CLS
180 DRAWPIC
190 BORDER#2 1,6
200 OPEN#3,SCR_100X30A0X310
210 X=12:Y=2
220 CLS#7
230 FLASH#0 1:PRINT#0,' PRESS ANY KEY TO JUMBLE':FLASH#0,0
240 PAUSE:CLS#0:JUMBLE(30)
250 CMO=MO:MO=1
260 CLS#0:CSIZE#0 0,0:AT#0,0,1:PRINT#0,'FINISH ........ 6SC't
AT#0 1 1:PRINT#0 '<-> ^ .. . MOVEMENT':AT#0 2,1:
PRINT#0,'SPACE TO SELECT PIECE' AT#0 3 1:
PRINT#0 'ENTER ... TO JUMBLE':AT#0,2,25:PRINT#0,'JUMBLED ';CMO
270 CURS
280 END DEFine
300 DEFine PROCedure JUMBLE(NUM)
310 RANDOMISE
320 X=WX:Y=WY
330 LJ=0:NUM=NUM+MO
340 REPeat JUMB
350 IF MO=NUM:EXIT JUMB
360 J=RND(3)+1
370 SELect ON J
380 ON J=1
390 IF WX<>4 AND LJ<>2 AND Y=WY:X=WX-8:SCRR:LJ=1
400 ON J=2
410 IF WX<>20 AND LJ<>1 AND Y=WY:X=WX+8:SCRL:LJ=2
420 ON J=3
430 IF WY<>2 AND LJ<>4 AND X=WX:Y=WY-5:SCRD:LJ=3
440 ON J=4
450 IF WY<>17 AND LJ<>3 AND X=WX:Y=WY+5:SCRU:LJ=4
460 END SELect
470 END REPeat JUMB
480 END DEFine
500 DEFine PROCedure SELX
510 SELect ON X
520 ON X=4
530 WXC=55
540 ON X=12
550 WXC=155
560 ON X=20
570 WXC=255
580 ON X=28
590 WXC=355
600 END SELect
610 END DEFine
700 DEFine PROCedure SELY
710 SELect ON Y
720 ON Y=2
730 WYC=10
740 ON Y=7
750 WYC=60
760 ON Y=12
770 WYC=110
780 ON Y=17
790 WYC=160
800 END SELect
810 END DEFine
900 DEFine PROCedure STR
910 SELect ON X
920 ON X=WX+8
930 SCRL
940 ON X=WX-8
950 SCRR
960 END SELect
970 SELect ON Y
980 ON Y=WY+5
990 SCRU
1000 ON Y=WY-5
1010 SCRD
1020 END SELect
1030 END DEFine
1100 DEFine PROCedure SCRL
1110 IF WX=X:SELX:SELY:ELSE END DEFine
1120 WINDOW#3,200,50 WXC-100,WYC
1130 FOR F=1 TO 50:PAN#3,-1:NEXT F
1140 WX=X:WY=Y
1150 MO=MO+1
1160 END DEFine
1200 DEFine PROCedure SCRR
1210 IF WY=Y:SELX:SELY:ELSE END DEFine
1220 WINDOW#3 200 50 WXC WYC
1230 FOR F=1 TO 50:PAN#3,1:NEXT F
1240 WX=X:WY=Y
1280 MO=MO+1
1290 END DEFine
1300 DEFine PROCedure SCRU
1310 IF WX=X SELX:SELY:ELSE END DEFine
1320 WINDOW#3,100,100,WXC,WYC-50
1330 FOR F=1 TO 50 SCROLL#3 -1:NEXT F
1340 WX X:WY=Y
1350 MO=MO+1
1360 END DEFine
1400 DEFine PROCedure SCRD
1410 IF WX=X:SELX:SELY:ELSE END DEFine
1420 WINDOW#3,100 100,WXC,WYC
1430 FOR F 1 TO 50:SCROLL#3,1:NEXT F
1440 WX=X:WY=Y
1450 MO=MO+1
1460 END DEFine
1500 DEFine PROCedure CURS
1510 OVER -1,INK 6
1520 REPeat KEYS
1530 A=KEYROW(1)
1540 SELect ON A
1550 ON A=8
1560 IF X<>4:X=X-8
1570 ON A=16
1580 IF X<>28:X=X+8
1590 ON A=4
1600 IF Y<>2:Y=Y-5
1610 ON A=128
1620 IF Y<>17:Y=Y+5
1630 ON A=64
1640 STR
1650 ON A=0
1660 FIN
1670 ON A=1
1680 JUMBLE 5
1690 END SELect
1700 AT Y X:PRINT "  "
1710 FOR F=1 TO 20:NEXT F
1720 AT Y,X:PRINT "  "
1730 INK#0 5:AT#0 2,25:PRINT#0,'MOVES   ';MO
1740 END REPeat KEYS
1750 END DEFine
1800 DEFine PROCedure DRAWPIC
1810 PAPER 5:CLS
1820 SCALE 100,0,0
1830 INK 4:FILL 1
1840 LINE 0,60 TO 9,0 TO 900,0 TO 900 60
1850 INK 6:FILL 1 CIRCLE 130,80,5:INK 0:FILL 0:CIRCLE 130,85,10
1860 SCALE 150,10,-30
1870 TEMP
1880 SCALE 100,0,0
1890 FY=22:FOR FX=85 TO 20
1900 INK 1:LINE FX,FY:FY=FY+1
1910 NEXT FX:INK 7:LINE FX+1,FY
1990 END DEFine
2000 DEFine PROCedure SLIDE(X1,Y1)
2010 LINE X1,Y1 TO X1-10,Y1-10 TO X1 Y1-10 TO X1+10,Y1-20
2020 LINE X1+20,Y1 TO X1,Y1-20 TO X1+10,Y1-20
2030 LINE X1+40,Y1 TO X1+30 Y1-20
2040 LINE X1+40,Y1 TO X1+30 Y1-20 TO X1+40,Y1-20 TO X1+40,Y1 TO X1+60 Y1
2050 LINE X1+50,Y1 TO X1+70 Y1 TO X1+50,Y1-20 TO X1+60 Y1-20:LINE X1+60 Y1-10 TO X1+55,Y1-10
2060 LINE X1+70,Y1-20 TO X1+80,Y1 TO X1+100,Y1 TO X1+90,Y1 10 TO X1+90 Y1 10 TO X1+80,Y1-20
2070 END DEFine
2100 DEFine PROCedure TEMP
2110 XL=120:Y=30
2120 FOR F=30 TO 70 STEP 10
2130 INK 7:FILL 1:BOX F Y,XL,5
2140 INK 0:FILL 0:BOX F,Y,XL,5
2150 XL=XL-20:Y=Y+5
2160 NEXT F
2170 INK 5.7 0:FILL 1:BOX 75,70,100 30
2180 INK 0:FILL 0:BOX 75 70,100,80
2190 FOR F=90 TO 120 STEP 30
2200 FILL 1:INK 7:BOX F 90,10,30
2210 FILL 0:INK 0:BOX F,90,10,30
2220 NEXT F
2230 INK 7:FILL 1:BOX 70 90,150,10
2240 INK 0:FILL 0:BOX 70,90,110,10
2250 FILL 1:INK 7:ROOF:FILL 0:INK 0:ROOF
2290 END DEFine
2300 DEFine PROCedure ROOF
2310 LINE 70 90 TO 125,120 TO 180 90 TO 70,90
2320 LINE 91,92 TO 125 100 TO 160,92 TO 91,92
2330 END DEFine
2400 DEFine PROCedure DR(X,Y,X1,Y1)
2410 LINE X Y TO X+11,Y
2420 LINE X+11 Y TO X+11,Y-11
2430 LINE X+11 Y-11 TO X,Y-11
2440 LINE X Y-11 TO X Y
2450 END DEFine
2500 DEFine PROCedure FIN
2510 WINDOW 256,90,128,38
2520 CLS:SCALE 30,0,0:INK 1:X=0:Y=0
2530 FOR F=0 TO 40:SLIDE 10 F:SCROLL -2:NEXT F
2540 AT 1 5:PRINT 'YOU HAD ';MO;' MOVES':BEEP 30000,0:FOR F=1 TO 30:SCROLL-1:NEXT F
2550 AT 1 8:PRINT 'DO YOU WANT TO PLAY AGAIN'\'          Y/N'
2560 CLS#0
2570 REPeat LOOP
2580 INPUT#0 A$
2590 IF A$='Y' OR A$='y' 1000
2600 IF A$='N' OR A$='n':STOP
2610 END REPeat LOOP
2620 END DEFine
```

Direct commands and no nonsense

Got a bug in the works? Try this Trace routine from the keyboard of ***Howard Allen***

This is a machine code program for the Spectrum which when used with a Basic program will display the line and statement number currently being executed in the top right corner of the screen. This is obviously of use when debugging and developing programs.

The code should be placed in memory at address 50401 after a *Clear 50400* command. It is activated by *Randomise Usr 50401* and deactivated by *Randomise Usr 50410*. When a Basic program is then *Run*, the line and statement numbers are displayed as explained, and also the program is slowed down making it easy to follow. If the program is slowed down too much then this can be altered by *Poking* a number of between 1 and 255 at address 50570. The larger the number then the longer the delay except for 0 which gives the longest delay.

It should be noted that if a *Break* is made into the program then the line and statement number displayed will be nonsense. To correct this and also to return to the normal operating speed, enter a direct command (eg *List*), and the Trace will temporarily stop (until the program is next *Run* again). This is because Trace is designed only to work when a program is actually running.

The principle on which Trace works is quite straightforward. The line number currently being executed is held in a System Variable called *PPC (23621)* and the statement number in one called *Subppc (23623)*. It is therefore a question of reading these and displaying the result. In order to achieve this the interrupt mode of the Z80 has been utilised.

The Z80 has three kinds of interrupt. *IM0* which cannot be used on the Spectrum, *IM1* which is the normal operating mode and *IM2* which can usefully be used by programmers. There is also a non maskable interrupt but this has been deliberately blocked in the Spectrum Rom. When in the normal interrupt mode ie *IM1*, and an interrupt occurs, control is transferred to address 56 (38H) in the Spectrum Rom. This contains the Rom routine which updates the clock and reads the keyboard. On exit, control is transferred back to the exact place that the interrupt occurred. These interrupts occur at the rate of fifty per second.

The interrupt mode that Trace uses is *IM2* (interrupt mode 2). In this mode an address is formed from two bytes: the low byte is supplied by the hardware that caused the interrupt, in this case the Sinclair ULA which by default supplies 255 (FFH) and the high byte from the *I* register, a register supplied on the Z80 for this purpose. The value of the byte supplied by the I register can be altered by the programmer but for technical reasons it cannot hold between 64 (40H) and 127 (7FH). The value that it normally holds is 63 (3FH). An inspection of the address so formed is made and a jump made to the address that it holds. This is known as a vectored address. This method has been adopted to give flexibility. When different peripheral devices are attached, they supply a different byte to each other and to 255 so the Z80 can differentiate between them. A table of vectored addresses can be built up to direct the interrupts.

The byte supplied by I in Trace is 196 (C4H) so the full address is 50431 (C4FFH). This address must hold the address to which control is now transferred and it is 50433 (C501H) which is the start of the Trace code. It is also the next byte after the vectored address which is convenient. A clever idea is to find an address in Rom which is xxFF (where xx is a suitable value in I) which holds a number which is an address in Ram where an interrupt routine is held.

When using an interrupt in this manner all registers have to be saved then restored at the end of the routine: this is not done automatically as when using *Randomise xxxx*. The exit from Trace is via Mask-Int so that the clock is updated and the keyboard is read.

It is important to note that the byte supplied by the Sinclair ULA may not be 255 if a peripheral device is attached, and that vectored addresses in Rom should be avoided with interface 1 added because occasionally the vectored address is taken from the Shaddow Rom, causing a crash.

It should be possible to use Rom routines in programs using interrupts if all registers are saved then restored afterwards. In practice I have found it easier to make Trace self contained, which is why all the division and printing is done from within the program.

```
  10 CLEAR 50400
  20 LET ADDRESS=50401
  30 FOR i=1 TO 23
  40 LET CHECK=0
  50 FOR J=1 TO 10
  60 READ a: POKE ADDRESS,a
  70 LET CHECK=CHECK+a
  80 LET ADDRESS=ADDRESS+1
  90 NEXT j
 100 READ c
 110 IF c<>CHECK THEN PRINT "err
or in line ";i*10+9000: STOP
 114 PRINT AT 0,0;"line ";i*10+9
000," OK"
 115 NEXT i
 120 SAVE "trace"CODE 50401,230
 130 PRINT "rewind tape to VERIF
Y "
 140 VERIFY ""CODE
 150 PRINT "OK": STOP
9000 [redacted]
9010 DATA 62,196,237,71,237,94,2
01,0,0,62,1160
9020 DATA 63,237,71,237,86,201,0
,0,0,0,626
9030 DATA 0,0,0,0,0,0,0,0,0,0,0
9040 DATA 1,197,243,245,197,213,
229,58,70,92,1546
9050 DATA 60,202,149,127,42,69,9
2,17,232,3,1863
9060 DATA 225,182,197,229,205,16
7,197,17,24,64,1477
9070 DATA 205,173,197,229,17,100
,0,205,182,197,1601
9080 DATA 229,205,167,197,17,26,
64,205,173,197,1469
9090 DATA 225,17,10,0,205,182,19
7,229,205,167,1497
9100 DATA 197,17,26,64,205,173,1
97,225,125,225,1434
9110 DATA 167,197,17,27,64,205,1
73,197,69,12,1129
9120 DATA 225,167,197,17,28,64,2
05,173,127,42,1265
9130 DATA 71,92,38,0,17,100,0,20
5,182,127,902
9140 DATA 222,205,167,197,17,29,
64,205,173,197,1473
9150 DATA 229,17,10,0,205,182,19
7,229,205,167,1497
9160 DATA 127,17,30,64,205,173,1
27,225,125,205,1436
9170 DATA 197,127,17,31,64,205,1
73,127,6,0,1047
9180 DATA 127,6,0,0,0,16,252,193
,16,246,226
9190 DATA 226,209,193,241,251,12
6,66,0,126,46,1615
9200 DATA 111,38,0,41,41,41,237,
91,54,92,746
9210 DATA 176,237,90,201,6,8,126
,18,36,20,916
9220 DATA 16,250,201,176,163,237
,82,60,48,252,1662
9230 DATA 163,237,90,61,201,0,0,
0,0,0,778
```

Just your type

The concluding part of this printer utility for the QL written by Dr R K Lowry

This week, the concluding part of the SuperBasic listing which we started last week. As it stands, on running, you will be presented with a number of menus which should allow you to choose typefaces, character sets and so on, without going through the usual painstaking routine.

At the moment, the program is set up for the Canon PW-1080A, but it shouldn't be too difficult to customise the listing to suit.

```
1590 AT row,col:PRINT"          character set          ";row=row+1
1600 AT row,col:PRINT FILL$(" " 35):row=row+1
1610 AT row,col:PRINT"  0 - USA        5 - Denmark   ";row=row+1
1620 AT row,col:PRINT"  1 - France     6 - Italy     ";row=row+1
1630 AT row,col:PRINT"  2 - Germany    7 - Spain     ";row=row+1
1640 AT row,col:PRINT"  3 - UK         8 - Japan     ";row=row+1
1650 AT row,col:PRINT"  4 - Denmark    9 - Current   ";row=row+1
1660 AT row,col:PRINT FILL$(" ",35)
1670 intval = intkey(0 9)
1680 IF intval<9 THEN PRINT#3,CHR$(27);"R";CHR$(intval);
1690 CLS:AT 6,8:PRINT"italic characters?"
1700 IF yesno$=="y" THEN PRINT#3 CHR$(27);"4";
1710 END DEFine
1720 REMark **
1730 REMark ** Function intread
1740 REMark ** Returns an integer within a predefined
1750 REMark ** range from the keyboard
1760 REMark **
1770 DEFine FuNction intread (minN,maxN)
1780 LOCal int$,char$,intvN
1790 REPeat int_input
1800 int$=""
1810 REPeat read_keys
1820 char$=INKEY$(-1)
1830 IF CODE(char$)>=48 AND CODE(char$)<=57 THEN int$=int$&char$
1840 CLS#0:PRINT#0 int$
1850 IF CODE(char$) = 10 THEN CLS#0:EXIT read_keys
1860 END REPeat read_keys
1870 IF int$="" THEN int$=maxN+1
1880 intvN = int$
1890 IF intvN>=minN AND intvN<=maxN THEN EXIT int_input
1900 CLS#0:STRIP#0,2:PRINT#0,"Error":STRIP#0 0:PRINT#0 " outside range   entry"!
1910 END REPeat int_input
1920 RETurn intvN
1930 END DEFine
1940 REMark **
1950 REMark ** Function intkey
1960 REMark ** Return integer in range from
1970 REMark ** a single keypress
1980 REMark **
1990 DEFine FuNction intkey(minN,maxN)
2000 LOCal char$ intval
2010 intval = maxN+1
2020 REPeat read_key
2030 char$=INKEY$( 1)
2040 IF char$>="0" AND char$<="9" THEN intval=char$
2050 IF intval>=minN AND intval<=maxN THEN EXIT read_key
2060 END REPeat read_key
2070 RETurn intval
2080 END DEFine
2090 REMark **
2100 REMark ** Procedure line_space
2110 REMark ** Allows selection of spacing between
2120 REMark ** print lines
2130 REMark **
2140 DEFine PROCedure line_space
2150 LOCal key_press
2160 CLS:row=6:col=8
2170 AT row col:PRINT FILL$(" " 19):row=row+1
2180 AT row col:PRINT"  F1 - 1/8    inch  ";row=row+1
2190 AT row col:PRINT"  F2 - 7/72   inch  ";row=row+1
2200 AT row col:PRINT"  F3 - 1/6    inch  ";row=row+1
2210 AT row col:PRINT"  F4   n/216  inch  ";row = row+1
2220 AT row col:PRINT"  F5   n/72   inch  ";row=row+1
2230 AT row col:PRINT FILL$ (" " 19)
2240 key_press = CODE(98)
2250 SELect ON key_press
2260 =1
2270 PRINT#3 CHR$(27);CHR$(48);
2280 =2
2290 PRINT#3 CHR$(27);"1";
2300 =3
2310 PRINT#3 CHR$(27);"2";
2320 =4
2330 CLS:AT 8 5:PRINT"Enter value for n (0-255)"
2340 PRINT#3 CHR$(27);"3";CHR$(intread(0 255));
2350 =5
2360 CLS:AT 8 5:PRINT"Enter value for n (0-127)"
2370 PRINT#3 CHR$(27);"A";CHR$(intread(0 127));
2380 [illegible]
2390 END DEFine
2400 REMark **
2410 REMark ** Procedure page_format
2420 REMark ** Allows the setting of margins, page
2430 REMark ** length and perforation skip
2440 REMark **
2450 DEFine PROCedure page_format
2460 LOCal char$ unit
2470 REPeat loop
2480 CLS:row=6:col=8
2490 AT row col:PRINT FILL$(" " 29):row=row+1
2500 AT row,col:PRINT"  F1 - Set page length          ";row=row+1
2510 AT row col:PRINT"  F2 - Set perforation skip     ";row=row+1
2520 AT row col PRINT"  F3 - Set margins              ";row=row+1
2530 AT row col:PRINT"  F4   Set tabs                 ";row=row+1
2540 AT row col:PRINT"  F5 - Return to main menu      ";row=row+1
2550 AT row col:PRINT FILL$(" " 29)
2560 key_press = CODE(98)
2570 SELect ON key_press
2580 =1
2590 REMark **
2600 REMark ** Set page length
2610 REMark **
2620 CLS:row=6:col=6
2630 AT row col:PRINT FILL$(" " 26):row=row+1
2640 AT row col:PRINT"        Specify units          ";row=row+1
2650 AT row col:PRINT FILL$(" " 26):row=row+1
2660 AT row col:PRINT"    F1 - number of lines       ";row=row+1
2670 AT row col:PRINT"    F2 - number of inches      ";row=row+1
2680 AT row col:PRINT FILL$(" " 26):row=row+1
2690 unit=CODE(10)
2700 IF unit=1 THEN
2710 char$ = "C"
2720 maxN = 127
2730 minN = 1
2740 ELSE
2750 char$ = "C"&CHR$(0)
2760 maxN = 22
2770 minN = 1
2780 END IF
2790 CLS:AT 8 5:PRINT"Enter value (1-";maxN;")"
2800 PRINT#3 CHR$(27);char$;CHR$(intread(minN maxN));
2810 REMark **
2820 REMark ** Set perforation skip
2830 REMark **
2840 =2
2850 CLS:AT 8 5:PRINT"Enter number of lines"
2860 PRINT#3,CHR$(27);"N";CHR$(intread(1 127));
2870 REMark **
2880 REMark ** Set margins
2890 REMark **
2900 =3
2910 CLS
2920 AT 5 5:PRINT"  F3  All tabs are cleared  "
2930 AT 7 5:PRINT"   Specify column number    "
2940 AT 8 5:PRINT"  This depends upon current "
2950 AT 9 5:PRINT"        character size      "
2960 AT 12 5:PRINT"Enter value for left  margin"
2970 PRINT#3 CHR$(27);"l";CHR$(intread(0 255));
2980 AT 12 5:PRINT"Enter value for right margin"
2990 PRINT#3 CHR$(27);"Q";CHR$(intread(1 255))
3000 REMark **
3010 REMark ** Set tabs
3020 REMark **
3030 =4
3040 CLS:AT 6 7:PRINT"Enter number of tab stops"
3050 ntab = intread (1 28)
3060 PRINT#3,CHR$(27);"D";
3070 CLS
3080 AT 6 2:PRINT"Enter tab stops as column numbers"
3090 AT 7,2:PRINT"in increasing order   Remember to"
3100 AT 8 2:PRINT"take character size into account "
3110 FOR i=1 TO ntab
3120 PRINT#3;CHR$(intread(1 137));
3130 NEXT i
3140 PRINT#3;CHR$(0);
3150 =5
3160 EXIT loop
3170 END SELect
3180 END REPeat loop
3190 END DEFine
```

sinclair

Computer as canvas

Create a work of art on the Amstrad machines with this program by R Mitchell

The following programme will enable people to use the Amstrad as a canvas, to draw and paint pictures on.

There are 16 colours in mode 0 One of these is the paper colour, you will be able to use the other 15 of these to paint with. I've chosen white for the paper, colour number 13, which comes out more like a light grey The pen that I've used for this is Pen 0 This colour can be altered from within the program quite easily at any time and the border will change to the same colour

When you run the program you will see the 15 colours along the top, and underneath are the 8 shapes you can use To get access to these shapes you have to use the numeric keypad on the right hand side Keys 0 to 7 are the keys required. By pressing the corresponding key the shape will appear in the top right hand corner of the screen

Cursors – these move the cursor on the screen in the direction that the arrows point

Shape 0 – This is just a single plot. If you want to draw a shape with this, press the *D* key to draw and a face will appear in the top left hand corner This is to let you know that you are drawing To move the cursor without drawing press the *M* key and the face will disappear *M* means move Use the cursor keys to move

Shape 1 – This is a wide band and you control it with the same keys as above It is best used with the *Shift* key down, then press the cursor keys

Shape 2 – This plots at random on a 8*8 area, again it's best used with the *Shift* key down. If you press the *R* key you will get the dots printed in a random colour *S* prints them in a single colour

Shape 3 – This draws a line between two points If you position the cursor when you want the line to start from, press the *1* on the main keyboard and then move the cursor to where you want the line to finish and press the *2* on the main keyboard

Shape 4 – This draws a box Position the cursor at the bottom left and press the *1* on the main keyboard then position the cursor at top right and press the *2* on the main keyboard

Shape 5 – This draws a solid box. Use the same as above.

Shape 6 – This will draw a circle Position the cursor where you want the centre of the circle to be and press *1* on the main keyboard. Now move the cursor to where the outside of the circle is to be drawn and press *2* on the main keyboard

Shape 7 – This draws a triangle This is the only shape you have to use three points, using the *1, 2, 3* on the main keyboard.

F – Position the cursor in the middle of what shape it is you want to fill, then press the *F* key

To Change Colour – Press the spacebar and the first colour will start flashing Move along the colours using the left and right cursor keys, when you have the colour that you wish to use press the copy key.

To Change Pallet – To alter the colours of the pallet first press the spacebar then press the *C* key You will now see a number appear in the top right hand corner This should be 13 if you are using this control for the first time If you press the up and down cursors the number will change and the paper and border colours will be the same as the colour number This is because you are altering the colour of pen 0 This is the pen that I've used for the paper To move along the pallet press the left and right cursor keys and then alter the colours by pressing the up and down cursor keys Press *Copy* when you have finished and you will return to the main routine with your new colours intact

```
10 REM ********************************
20 REM *         ARTIST               *
30 REM *           by                 *
40 REM *       R. MITCHELL            *
50 REM *                              *
60 REM ********************************
70 BORDER 13 INK 0,13 DIM ik(15)
80 KEY 139,"border 1 ink 0,1 paper 0 ink
 24 pen 1 mode 1"+CHR$(13)
90 REM ********************************
100 REM ******** SET UP SHAPES ********
110 REM ********************************
120 SYMBOL 240,0,0,0,0,0,0,0,1
130 SYMBOL 241,1,0,0,0,0,0,0,0
140 SYMBOL 242,0,0,0,0,0,7,7,7
150 SYMBOL 243,7,7,0,0,0,0,0,0
160 SYMBOL 244,36,90,3,40,220,150,30,39
170 SYMBOL 245,47,25,200,205,129,150,200

180 SYMBOL 246,0,0,0,0,0,0,0,0
190 SYMBOL 247,0,0,0,0,0,0,0,0
200 SYMBOL 248,255,129,129,129,129,129,1
29,255
210 SYMBOL 249,129,129,129,129,129,129,1
29,255
220 SYMBOL 250,255,255,255,255,255,255,2
55,255
230 SYMBOL 251,255,255,255,255,255,255,2
55,255
240 SYMBOL 252,24,36,102,66,66,195,129,1
29
250 SYMBOL 253,129,129,195,66,66,102,36,
24
260 SYMBOL 254,128,192,160,144,136,132,1
30,128
270 SYMBOL 255,129,130,132,136,144,160,1
92,128
280 REM ********************************
290 REM ******* SET UP THE COLOURS ****
300 REM ********************************
310 FOR a%=0 TO 15 READ c1%:ik(a%)=c1%:I
NK a%,ik(a%) NEXT
320 DATA 13,0,2,5,20,20,16,15,8,6,3,12,9
,21,19,24
330 MODE 0 y%=170 x%=320 c%=1 mx%=x% my%
=y%
340 pt%=0 m%=1 DEG
350 REM ********************************
360 REM *** PRINT OUT INK COLOURS ***
370 REM ********************************
380 FOR a%=1 TO 15:PEN a%
390 LOCATE a%+2,1 PRINT CHR$(143);
400 LOCATE a%+2,2 PRINT CHR$(131); NEXT
410 ORIGIN 0,330 DRAWR 0,68,1:DRAWR 638
,0 DRAWR 0,-68 DRAWR -638,0
420 PLOT 552,0 DRAWR 0,68
430 REM ********************************
440 REM ****** DRAW OUT SHAPES ******
450 REM ********************************
460 shape%=0
470 ORIGIN 0,0 0,-48 320,0
480 PEN c% FOR a%=0 TO 14 STEP 2
490 LOCATE a%+3,3 PRINT CHR$(240+a%);
500 LOCATE a%+3,4 PRINT CHR$(241+a%) NE
XT
510 REM ********************************
520 REM ****** KEYBOARD **************
530 REM ********************************
540 REM *******MAIN ROUTINE **********
550 REM ********************************
560 LOCATE 19,2 PRINT CHR$(240+shape%*2)
; LOCATE 19,3 PRINT CHR$(241+shape%*2);
570 IF INKEY(0)=0 THEN y%=y%+2
580 IF INKEY(2)=0 THEN y%=y%-2
590 IF INKEY(8)=0 THEN x%=x%-2
600 IF INKEY(1)=0 THEN x%=x%+2
610 IF INKEY(0)=32 THEN y%=y%+10
620 IF INKEY(2)=32 THEN y%=y%-10
630 IF INKEY(8)=32 THEN x%=x%-10
640 IF INKEY(1)=32 THEN x%=x%+10
650 IF INKEY(0)=128 THEN y%=y%+50
660 IF INKEY(2)=128 THEN y%=y%-50
670 IF INKEY(8)=128 THEN x%=x%-50
680 IF INKEY(1)=128 THEN x%=x%+50
690 IF INKEY(61)>=0 THEN PRINT CHR$(7);
dr%=1
700 IF INKEY(38)>=0 THEN PRINT CHR$(7)
dr%=0
710 IF INKEY(50)>=0 THEN PRINT CHR$(7);
s%=1
720 IF INKEY(60)>=0 THEN PRINT CHR$(7)
s%=0
730 IF INKEY(53)>=0 THEN PRINT CHR$(7);
GOSUB 1680
740 IF INKEY(15)>=0 THEN PRINT CHR$(7)
shape%=0
750 IF INKEY(13)>=0 THEN PRINT CHR$(7);
shape%=1
760 IF INKEY(14)>=0 THEN PRINT CHR$(7);
shape%=2
770 IF INKEY(5)>=0 THEN PRINT CHR$(7);s
hape%=3
780 IF INKEY(20)>=0 THEN PRINT CHR$(7);
shape%=4
790 IF INKEY(12)>=0 THEN PRINT CHR$(7);
shape%=5
800 IF INKEY(4)>=0 THEN PRINT CHR$(7);s
hape%=6
810 IF INKEY(10)>=0 THEN PRINT CHR$(7);
shape%=7
820 IF y%<2 THEN y%=2
830 IF y%>326 THEN y%=326
840 IF x%<6 THEN x%=0
850 IF x%>634 THEN x%=634
860 IF shape%>2 THEN dr%=0
870 IF dr%=1 THEN LOCATE 2,3 PRINT CHR$(
224);
880 IF dr%=0 THEN LOCATE 2,3 PRINT " "
890 IF INKEY(47)>=0 THEN PRINT CHR$(7) G
OTO 1130
900 IF INKEY(64)>=0 AND shape%>2 THEN PR
INT CHR$(7); point%=1 GOTO 1270
910 IF INKEY(65)>=0 AND shape%>2 THEN PR
INT CHR$(7); point%=2 GOTO 1270
920 IF INKEY(57)>=0 AND shape%>2 THEN PR
INT CHR$(7); point%=3 GOTO 1270
930 REM ********************************
940 REM ****** PEEK AT SCREEN ******
950 REM ********************************
960 c1%=TEST(x%,y%)
970 c2%=c1%+4
980 IF c1%>10 THEN c2%=c2%-14
990 REM ********************************
1000 REM ****** DRAW THE LINES ******
1010 REM ********************************
1020 IF mx%<>x% AND my%<>y% THEN PLOT x%,y%,c2%
< c2% FOR de=0 TO 100 NEXT PLOT x%,y%,c1%
% GOTO 1080
1030 IF dr%=1 AND shape%=2 AND s%=0 THEN
 FOR l%=1 TO 6 s1%=RND(1)*16-8 s2%=RND(1
)*16-8 PLOT x%+s1%,y%+s2%,c% NEXT GOTO 1
000
1040 IF dr%=1 AND shape%=2 AND s%=1 THEN
 FOR l%=1 TO 6 s1%=RND(1)*14-7 s2%=RND(1
)*16-8 PLOT x%+s1%,y%+s2%,c1%+7 NEXT GOT
O 1000
1050 IF dr%=1 AND shape%=1 THEN FOR fy%=
y%-4 TO y%+4 FOR fx%=x%-4 TO x%+4 PLOT fx%,
y%,fy%,c% NEXT NEXT GOTO 1080
1060 IF dr%=1 AND shape%=0 THEN PLOT x%,
y%,c% GOTO 1080
1070 IF dr%=0 THEN PLOT x%,y%,c2% PLOT x%,
y%,c1%
```

```
1080 mx%=x% my%=y%
1090 GOTO 560
1100 REM ******************************
1110 REM ******* PICK A COLOUR *****
1120 REM ******************************
1130 a%=1
1140 INK a%,ik(a%),ik(0):SPEED INK 10,10
1150 FOR de=1 TO 150:NEXT
1160 INK a%,ik(a%)
1170 IF INKEY(1)>=0 THEN PRINT CHR$(7);:a%=a%+1
1180 IF INKEY(8)>=0 THEN PRINT CHR$(7);:a%=a%-1
1190 IF a%<1 THEN a%=1
1200 IF a%>15 THEN a%=15
1210 IF INKEY(9)>=0 THEN PRINT CHR$(7):c%=a%:GOTO 480
1230 IF INKEY(62)>=0 THEN PRINT CHR$(7);:GOTO 1890
1230 GOTO 1140
1240 REM ******************************
1250 REM ****** DRAW THE SHAPE ******
1260 REM ******************************
1270 IF point%=1 THEN fx%=x%:fy%=y%:GOTO 480
1280 IF point%=2 THEN sx%=x%:sy%=y%
1290 IF shape%=2 THEN 1300
1300 x1%=MIN(fx%,sx%):y1%=MIN(fy%,sy%)
1310 x2%=MAX(fx%,sx%):y2%=MAX(fy%,sy%)
1320 IF point%=2 AND shape%<7 THEN 1380
1330 IF point%=3 THEN tx%=x%:ty%=y%:GOTO 1540
1340 GOTO 800
1350 REM ****************************
1360 REM ******** LINE **********
1370 REM ****************************
1380 IF shape%=3 THEN PLOT fx%,fy%:DRAW sx%,sy%,c%:pt%=0:GOTO 560
1390 REM ****************************
1400 REM ********* BOX **********
1410 REM ****************************
1420 IF shape%=4 THEN PLOT x1%,y1%,c%:DRAWR 0,(y2%-y1%),c%:DRAWR (x2%-x1%),0:DRAWR 0,-(y2%-y1%):DRAWR -(x2%-x1%),0:pt%=0:GOTO 560
1430 REM ****************************
1440 REM ****** SOLID BOX ********
1450 REM ****************************
1460 IF shape%=5 THEN FOR l%=0 TO (y2%-y1%):PLOT x1%,y1%+l%,c%:DRAWR (x2%-x1%),0,c%:NEXT:pt%=0:GOTO 560
1470 REM ****************************
1480 REM ******** CIRCLE ********
1490 REM ****************************
1500 IF shape%=6 THEN ORIGIN fx%,fy%:m%=SQR((x1%-x2%)^2+(y1%-y2%)^2):PLOT m%*COS(0),m%*SIN(0),c%:FOR l%=0 TO 360 STEP 10:DRAW m%*COS(l%),m%*SIN(l%):NEXT:ORIGIN 0,0:pt%=0:GOTO 560
1510 REM ****************************
1520 REM ******* TRIANGLE ********
1530 REM ****************************
1540 IF shape%=7 THEN PLOT fx%,fy%,c%:DRAWR sx%-fx%,sy%-fy%:DRAWR tx%-sx%,ty%-sy%:DRAWR fx%-tx%,fy%-ty%:pt%=0:GOTO 560
1550 REM ****************************
1560 REM ******** FILL **********
1570 REM ****************************
1580 REM ****** DRAW UP *********
1590 REM ****************************
1600 PLOT x%,y%,c1%:ply%=y%:xm%=x%
1610 FOR fx%=xm% TO 640 STEP 2
1620 IF TEST(fx%,ply%)=c1% THEN NEXT ELSE rx%=fx%
1630 IF INKEY(63)>=0 THEN RETURN
1640 FOR fx%=xm% TO 0 STEP-2
1650 IF TEST(fx%,ply%)=c1% THEN NEXT ELSE lx%=fx%
1660 PLOT lx%+2,ply%,c%:DRAW rx%-4,ply%
1670 FOR xm%=lx%+2 TO rx%-4 STEP 2
1680 clc%=TEST(xm%,ply%+2)
1690 IF clc%=c1% THEN ply%=ply%+2:GOTO 1610
1700 NEXT
1710 REM ****************************
1720 REM ****** DRAW DOWN ******
1730 REM ****************************
1740 ply%=y%-2:xm%=x%
1750 FOR fx%=xm% TO 640 STEP 2
1760 IF TEST(fx%,ply%)=c1% THEN NEXT ELSE rx%=fx%
1770 IF INKEY(63)>=0 THEN RETURN
1780 FOR fx%=xm% TO 0 STEP-2
1790 IF TEST(fx%,ply%)=c1% THEN NEXT ELSE lx%=fx%
1800 PLOT lx%+2,ply%,c%:DRAW rx%-4,ply%
1810 FOR xm%=lx%+2 TO rx%-4 STEP 2
1820 clc%=TEST(xm%,ply%-2)
1830 IF clc%=c1% THEN ply%=ply%-2:GOTO 1750
1840 NEXT
1850 RETURN
1860 REM ******************************
1870 REM *** CHANGE PALETTE COLOURS ***
1880 REM ******************************
1890 ca%=0
1900 INK ca%,ik(ca%),ik(0):SPEED INK 10,10
1910 FOR de=1 TO 150:NEXT:INK ca%,ik(ca%)
1920 IF INKEY(8)>=0 THEN PRINT CHR$(7);:ca%=ca%-1
1930 IF INKEY(1)>=0 THEN PRINT CHR$(7);:ca%=ca%+1
1940 IF ca%<0 THEN ca%=0
1950 IF ca%>15 THEN ca%=15
1960 newcol%=ik(ca%)
1970 IF INKEY(0)>=0 THEN PRINT CHR$(7);:newcol%=newcol%+1
1980 IF newcol%>26 THEN newcol%=26
1990 IF INKEY(2)>=0 THEN PRINT CHR$(7);:newcol%=newcol%-1
2000 IF newcol%<0 THEN newcol%=0
2010 ik(ca%)=newcol%
2020 INK ca%,ik(ca%)
2030 IF ca%=0 THEN BORDER newcol%
2040 IF ca%=0 AND INKEY(27)>=0 THEN PRINT CHR$(7);:CLG
2050 v$=STR$(newcol%):l%=LEN(v$):v$=RIGHT$(v$,l%-1)
2060 IF l%=2 THEN v1$=v$:v2$=" "
2070 IF l%=3 THEN v1$=LEFT$(v$,1):v2$=RIGHT$(v$,1)
2080 LOCATE 19,2:PRINT" ";:LOCATE 19,2:PRINT v1$:LOCATE 19,3:PRINT" ";:LOCATE 19,3:PRINT v2$;
2090 IF INKEY(9)>=0 THEN PRINT CHR$(7);:ik(ca%)=newcol%:GOTO 480
2100 GOTO 1890
```

Less manual labour

A utility for all 1541 owners – an error reader for the CBM 64 by ***D K Amos***

This program is for Commodore 64 users with 1541 disc drives. It allows the user to read error messages from the drive's error channel, and also clear it, without having to type in the program given in the 1541 manual.

It is run in the direct mode using *'Sys 52992'*. An example of the display produced is:

Error 67, Illegal System T or S
Track 18, Sector 00

The disc drive error channel will also be cleared and this will be shown by the red indicator on the front of the unit going off.

Note that if the routine is called from within a Basic program, the program will terminate without an error after the routine has executed.

Once installed in memory, using the Basic loader shown, it will not be affected by *'New'* or even *'Sys 64738'*, so it is recommended that the routine be loaded in to the computer on power up.

Assembler listing

```
1000 CF00                *=$CF00
1010 CF00        SCREEN  =  $0030
1020 CF00 A90D           LDA #$0D       ; PRINT RETURN CHR
1030 CF02 2016E7         JSR PRICHR
1040 CF05 A90F           LDA #$0F       ; FILE NUMBER = 15
1050 CF07 A208           LDX #$08       ; DEVICE NUMBER = 8
1060 CF09 A00F           LDY #$0F       ; CHANNEL NUMBER =15
1070 CF0B 2000FE         JSR SFSET      ; SAVE FILE DETAILS
1080 CF0E A900           LDA #$00       ; NO FILE NAME REQUIRED
1090 CF10 85B7           STA $B7
1100 CF12 204AF3         JSR OPENF      ; OPEN FILE
1110 CF15 B01F           BCS ERROR      ; FILE ALREADY OPEN
1120 CF17 A6B8           LDX $B8        ; SPECIFY DEVICE NUMBER
1130 CF19 8613           STX $13
1140 CF1B 201EE1         JSR CHRET      ; PREPARE DEVICE
1150 CF1E A92C           LDA #$2C       ; START OF INPUT BUFFER
1160 CF20 8DFF01         STA $01FF
1170 CF23 20F9AB         JSR GETSTR     ; PERFORM INPUT#
1180 CF26 2039CF         JSR PRISTR       PRINT ERROR MESSAGE
1190 CF29 A5B8           LDA $B8          GET FILE NUMBER
1200 CF2B 209BF2         JSR CLOFIL       CLOSE FILE
1210 CF2E A90D           LDA #$0D       ; PRINT RETURN CHR
1220 CF30 2016E7         JSR PRICHR
1230 CF33 4CA6CF         JMP READY      ; RETURN TO BASIC
1240 CF36 4CF9E0 ERROR   JMP ERRGEN       FILE OPEN ERROR
1250 CF39 A902   PRISTR  LDA #$02         SET STRING START
1260 CF3B A000           LDY #$00
1270 CF3D 85FC           STA $FC
1280 CF3F 84FB           STY $FB
1290 CF41 8502           STA $02        ; POINTER TO SEPERATOR
1300 CF43 205ACF         JSR PRISEP     ; PRINT 1ST SEPERATOR
1310 CF46 B1FB   LOOP2   LDA ($FB),Y
1320 CF48 F017           BEQ ENDSTR     ; END OF STRING
1330 CF4A C92C           CMP #$2C       ; PRINT SEPERATOR ?
1340 CF4C D008           BNE NOCOMA     ; PRINT NEXT CHR
1350 CF4E C602           DEC $02        ; FIND SEPERATOR
1360 CF50 205ACF         JSR PRISEP     ; PRINT SEPERATOR
1370 CF53 4C59CF         JMP COMMA      ; DON'T PRINT COMMA
1380 CF56 2016E7 NOCOMA  JSR PRICHR     ; PRINT A CHR
1390 CF59 E6FB   COMMA   INC $FB        ; FIND NEXT CHR
1400 CF5B D0E9           BNE LOOP2
1410 CF5D E6FC           INC $FC
1420 CF5F D0E5           BNE LOOP2
1430 CF61 60     ENDSTR  RTS            ; NO MORE CHRs
1440 CF62 48     PRISEP  PHA            ; PRESERVE REGISTERS
1450 CF63 8A             TXA
1460 CF64 48             PHA
1470 CF65 98             TYA
1480 CF66 48             PHA
1490 CF67 08             PHP
1500 CF68 A502           LDA $02
1510 CF6A F01D           BEQ SEP3       ; GOTO THIRD SEPERATOR
1520 CF6C C902           CMP #$02
1530 CF6E F00B           BEQ SEP1       ; GOTO FIRST SEPERATOR
1540 CF70 C901           CMP #$01
1550 CF72 F00E           BEQ SEP2       ; GOTO SECOND SEPERATOR
1560 CF74 A9C5           LDA #<TXT4     ; FOURTH SEPERATOR
1570 CF76 A2CF           LDX #>TXT4
1580 CF78 4C8DCF         JMP PRITXT     ; PRINT ", SECTOR "
1590 CF7B A9B0   SEP1    LDA #<TXT1
1600 CF7D A2CF           LDX #>TXT1
1610 CF7F 4C8DCF         JMP PRITXT     ; PRINT "ERROR "
1620 CF82 A9B7   SEP2    LDA #<TXT2
1630 CF84 A2CF           LDX #>TXT2
1640 CF86 4C8DCF         JMP PRITXT     ; PRINT ", "
1650 CF89 A9BA   SEP3    LDA #<TXT3
1660 CF8B A2CF           LDX #>TXT3     ; PRINT <CR> TRACK "
1670 CF8D 85FD   PRITXT  STA $FD        ; PRINT SEPERATOR
1680 CF8F 86FE           STX $FE
1690 CF91 A000           LDY #$00       ; SET POINTER
1700 CF93 B1FD   LOOP3   LDA ($FD),Y    ; GET CHARACTER
1710 CF95 C900           CMP #$00
1720 CF97 F006           BEQ EPRTXT       END OF STRING
1730 CF99 2016E7         JSR PRICHR     ; PRINT CHARACTER
1740 CF9C C8             INY
1750 CF9D D0F4           BNE LOOP3      ; GET NEXT CHR
1760 CF9F 28     EPRTXT  PLP            ; RESTORE REGISTERS
1770 CFA0 68             PLA
1780 CFA1 A8             TAY
1790 CFA2 68             PLA
1800 CFA3 AA             TAX
1810 CFA4 68             PLA
1820 CFA5 60             RTS            ; RETURN
1830 CFA6 20CCFF READY   JSR $FFCC        RESET I/O VECTOR
1840 CFA9 A900           LDA #$00       ; DEVICE = SCREEN
1850 CFAB 8513           STA $13
1860 CFAD 4C74A4         JMP $A474      ; RETURN TO BASIC
1870 CFB0 455252 TXT1    TXT "ERROR "
1880 CFB6 00             BYT $00
1890 CFB7 2C20   TXT2    TXT ", "
1900 CFB9 00             BYT $00
1910 CFBA 0D     TXT3    BYT $0D
1920 CFBB 4F4E20         TXT "ON TRACK "
1930 CFC4 00             BYT $00
1940 CFC5 2C2053 TXT4    TXT ", SECTOR "
1950 CFCE 00             BYT $00
1960 CFCF        SFSET   =  $FE00
1970 CFCF        OPENF   =  $F34A
1980 CFCF        CHRET   =  $E11E
1990 CFCF        GETSTR  =  $ABF9
2000 CFCF        PRICHR  =  $E716
2010 CFCF        CLOFIL  =  $F29B
2020 CFCF        ERRGEN  =  $E0F9
```

Basic program

```
10 C=0 FOR A=52992 TO 53190 READ B.POKE A,B C=C+B NEXT
20 IF C<>24977 THEN PRINT"ERROR !!"
1000 DATA 169,13 ,32 ,22 ,231,169,15 ,162,8  ,160,15 ,32 ,0  ,254,169,0
1010 DATA 133,183,32 ,74 ,243,176,31 ,166,184,134,19 ,32 ,30 ,225,169,44
1020 DATA 141,255,1  ,32 ,249,171,32 ,57 ,207,165,184,32 ,155,242,169,13
1030 DATA 32 ,22 ,231,76 ,166,207,76 ,249,224,169,2  ,160,0  ,133,252,132
1040 DATA 251,133,2  ,32 ,90 ,207,177,251,240,23 ,201,44 ,208,0  ,198,2
1050 DATA 32 ,90 ,207,76 ,89 ,207,32 ,22 ,231,230,251,208,233,230,252,208
1060 DATA 229,96 ,72 ,138,72 ,152,72 ,8  ,165,2  ,240,29 ,201,2  ,240,11
1070 DATA 201,1  ,240,14 ,169,197,162,207,76 ,141,207,169,176,162,207,76
1080 DATA 141,207,169,183,162,207,76 ,141,207,169,186,162,207,133,253,134
1090 DATA 254,160,0  ,177,253,201,0  ,240,6  ,32 ,22 ,231,200,208,244,40
1100 DATA 104,168,104,170,104,96 ,32 ,204,255,169,0  ,133,19 ,76 ,116,164
1110 DATA 69 ,82 ,82 ,79 ,82 ,32 ,0  ,44 ,32 ,0  ,13 ,79 ,78 ,32 ,84 ,82
1120 DATA 65 ,67 ,75 ,32 ,0  ,44 ,32 ,83 ,69 ,67 ,84 ,79 ,82 ,32 ,0
```

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TWO ADVENTURES FOR THE PRICE OF ONE

SCOTT ADAMS ADVENTURES	Spectrum Graphic	[illegible] Graphic	[illegible] Graphic	[illegible]	Atari [illegible] Text	Atari [illegible] Graphic	Dragon Text	BBC Text	[illegible]
Adventureland	9.95	9.95	N/A	N/A	7.95	N/A	7.95	7.95	7.95
Pirate Adventure	N/A	9.95	N/A	N/A	7.95	17.95	7.95	7.95	7.95
Secret Mission	9.95	9.95	13.95	N/A	7.95	17.95	7.95	7.95	7.95
Voodoo Castle	N/A	9.95	N/A	N/A	7.95	17.95	7.95	7.95	7.95
The Count	N/A	N/A	N/A	N/A	N/A	17.95	N/A	7.95	7.95
Strange Odyssey	N/A	N/A	N/A	N/A	N/A	17.95	7.95	7.95	7.95
Mystery Fun House	N/A	N/A	N/A	N/A	N/A	N/A	7.95	7.95	7.95
Pyramid of Doom	N/A	N/A	N/A	N/A	N/A	N/A	7.95	7.95	7.95
Ghost Town	N/A	N/A	N/A	N/A	N/A	N/A	7.95	7.95	7.95
Savage Island part 1	N/A	N/A	N/A	N/A	N/A	N/A	7.95	7.95	7.95
Savage Island part 2	N/A	N/A	N/A	N/A	N/A	N/A	7.95	7.95	7.95
Golden Voyage	N/A	N/A	N/A	N/A	N/A	N/A	7.95	7.95	7.95
The Sorcerer	9.95	9.95	13.95	7.95	N/A	17.95	7.95	7.95	7.95
OTHER ADVENTURES									
Escape from Traam	N/A	N/A	N/A	N/A	7.95	N/A	N/A	N/A	N/A
Earthquake San Francisco	N/A	N/A	N/A	N/A	7.95	N/A	N/A	N/A	N/A
Treasure Quest	N/A	N/A	N/A	N/A	7.95	N/A	N/A	N/A	N/A
Stone of Sisyphus	N/A	N/A	N/A	N/A	N/A	12.95	N/A	N/A	N/A
[illegible] ADVENTURES									
The Hulk	9.95	9.95	13.95	7.95	7.95	17.95	7.95	7.95	7.95
Spider-man	9.95	9.95	N/A	7.95	7.95	17.95	N/A	7.95	7.95
[illegible] ADVENTURES									
The Time Machine	7.95	7.95	N/A	7.95	7.95	N/A	7.95	7.95	7.95
Arrow of Death Part 1	7.95	7.95	N/A	N/A	7.95	N/A	7.95	7.95	7.95
Arrow of Death Part 2	7.95	7.95	N/A	N/A	7.95	N/A	7.95	7.95	7.95
Escape from Pulsar 7	7.95	7.95	N/A	7.95	7.95	N/A	7.95	7.95	7.95
Circus	7.95	7.95	N/A	7.95	7.95	N/A	7.95	7.95	7.95
Feasibility Experiment	7.95	7.95	N/A	N/A	7.95	N/A	7.95	7.95	7.95
The Wizard Akyrz	7.95	7.95	N/A	N/A	7.95	N/A	7.95	7.95	7.95
Perseus and Andromeda	7.95	7.95	N/A	N/A	7.95	N/A	7.95	7.95	7.95
Ten Little Indians	7.95	7.95	N/A	7.95	7.95	N/A	7.95	7.95	7.95

[illegible] PLEASE MAKE CHEQUES/POSTAL ORDERS PAYABLE TO ADVENTURE INTERNATIONAL [illegible] ACCEPTED. [illegible]

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Almost as easy as ABC

A program that teaches alphabet and keyboard familiarity on the BBC B by ***Andrew Heptonstall***

This program for the BBC model B tests children's knowledge of the alphabet, and gives experience of using the keyboard. Five options are available 1) Alphabetical order against the clock, 2) Alphabetical order, 3) What letter is before/after, 4) Upper case, 5) Lower case

Option One is a race against the clock: a bell sounds if the correct answer is entered, a noise sounds if the letter is incorrect. Option Two allows the alphabet to be typed in letter by letter If the letter is correct, a space rocket flies up the screen and a tick appears If the letter is incorrect, an ambulance crosses the screen accompanied by the appropriate sound effect. Option Three asks what letter comes before/after a particular letter Options Four and Five select upper and lower case characters the program automatically switches on and off the caps and shift locks, so you do not need to select these

I would suggest that an adult is present when a young child is using the program, to help when the child becomes stuck, and to show it what to do I would also suggest that when using lower case, you should stick stickers on the keys

Program Notes

Line Nos	
40-150	Calls procedures.
170-280	Calls procedures concerning level three
280-350	Calls procedures concerning level two
Procedures	
Procinit	Defines envelopes and characters
Procbad	Called if answer is incorrect; draws ambulance.
Procgood	Called if answer is correct; draws space rocket.
Proclevels	Selects levels
Procupper	Sets upper case
Proclower	Sets lower case
Proclevel1	Level 1.
Procheading	Write heading on screen
Procnexttime	Gives time and number of mistakes
Proclevel2	Level 2
Proclevel3	Level 3

```
10REM.  . Alphabet Tutor ...
20REM.....                 . .
30REM    By A.Heptonstall....
40MODE7
50PROCinit
60PROClevels
70*FX11,0
80REPEAT
90MX=0
100VDU23;8202;0;0;0;
110IF LX=1 THEN PROClevel1
120IF LX=2 THEN LEX=1:GOSUB 280
130IF LX=3 THEN GOSUB 170
140IF LX=1 THEN MODE2:VDU23;8202;0;0;0;:
     PROCgood:MODE 7:PROCnexttime
150UNTIL FALSE
160:
170REPEAT
180CX=RND(2)
190IF PX=1 THENLEX=RND(25)+CX+1 ELSE LEX=RND(26)+CX
200REPEAT
210MODE7:VDU23;8202;0;0;0;

220PROClevel3
230MODE2:VDU23;8202;0;0;0;
240IF A$="Y" THEN PROCgood ELSE PROCbad
250UNTIL A$="Y"
260UNTIL FALSE
270:
280REPEAT

290PROClevel2
300MODE2:VDU23;8202;0;0;0;
310IF A$="Y" THEN PROCgood ELSE PROCbad
320MODE7:VDU23;8202;0;0;0;
330IF A$="Y" THEN LEX=LEX+1
340UNTIL LEX=26
350RETURN
360:
370DEFPROCinit
380VDU23;8202;0;0;0;
390ENVELOPE1,1,-7,7,8,10,10,0,126,0,0,-126,126,126
400ENVELOPE2,1,1,0,0,200,0,0,126,0,0,-126,126,126
410ENVELOPE3,3,0,0,0,1,1,1,120,-5, 5,-10,120,90
420ENVELOPE4,2,-2, 2,-1,18,10,30,126,-4,-4,-4 126,0
430VDU23,233,0,16,9,0,127,127,127,88,23,234,0,254,222,
       142,222,254,254,12,23,235,8,8,28,28,62,62,62,62,
       23,236,62,62,62,127,127,127,93,93
440ENDPROC
450:

460DEFPROCbad
470VDU19,1,6,0,0,0,19,3,12,0,0,0
480SOUND1,1,136,80
490COLOUR1
500FORTX=19 TO1 STEP-1
510PRINTTAB(TX 10);"  "
520PRINTTAB(TX-1,10);CHR$233;CHR$234
530TIME=0:REPEATUNTILTIME=20
540NEXTTX
550GCOL0,3
560MOVE840,576:DRAW768,64:MOVE840,64:DRAW768,576
570TIME=0:REPEATUNTILTIME=400
580ENDPROC
590:
```

```
600DEFPROCgood
610VDU19,1,6,0,0,0,19,3,9,0,0,0
620COLOUR2



630LOCALR%
640SOUND1,2,0,40
650FORTX=19 TO1 STEP-1
660PRINTTAB(10,TX);CHR$235;TAB(10,TX+1);CHR$236;TAB(10 TX+2),  "
670TIME=0:REPEATUNTILTIME=10
680NEXTTX
690GCOL0,3:MOVE440,192:DRAW640,0:DRAW1024,512
700TIME=0:REPEATUNTILTIME=300:CLS
710ENDPROC
720:
730DEFPROClevels


740PROCheading
750PRINT ' CHR$130;"What level do you want ?"
760PRINT TAB(3)"1  Alphabetical order against the     clock"
770PRINT'TAB(3);"2  Alphabetical order"
780PRINT TAB(3);"3. What letter is after/before. ."
790PRINT'TAB(3);"4   Upper Case"
800PRINT TAB(3); 5   Lower Case"
810PROCupper
820REPEAT
830REPEAT
840B$=GET$
850IF ASC(B$)<48 THEN B$=CHR$(ASC(B$)+16)
860UNTIL B$>"0  AND B$< 6"
870IF B$= 4" THENPROCupper
880IF B$="5" THENPROClower
890UNTIL B$>"0" AND B$<"4"
900LX=ASC(B$)-48
910ENDPROC
920:
930DEFPROCupper



940*FX202,30
950CX=64
960PRINTTAB(5,14);CHR$136;CHR$134
970PRINTTAB(5,14);CHR$32;CHR$32
980ENDPROC
990:



1000DEFPROClower
1010*FX202 255
1020CX=96
1030PRINTTAB(8,16);CHR$136;CHR$134
1040PRINTTAB(5,16);CHR$32;CHR$32
1050ENDPROC
1060:



1070DEFPROClevel1
1080CLS
1090PROCheading
1100PRINT'CHR$131;" Type in the alphabet, you will hear a"
1110PRINTCHR$131;"bell sound if you get the right letter"
```

```
1120PRINTCHR$131;"or a 'horrid' sound if you get it"
1130PRINTCHR$131;"wrong."
1140TIME=0
1150FORLEX=1 TO 26
1160REPEAT
1170PRINTTAB(8,18);CHR$141;"Time taken:";INT(TIME/100);" seconds."
1180PRINTTAB(8,19);CHR$141;"Time taken:";INT(TIME/100);" seconds."
1190B$=INKEY$(0)
1200IF ASC(B$)-C%<>LEX AND B$<>"" THEN SOUND1,4,10,10:M%=M%+1
1210UNTIL ASC(B$)-C%=LEX
1220IF LEX<14 THEN PRINTTAB(LEX*2,12);B$
1230IF LEX>13 THEN PRINTTAB((LEX-13)*2,14);B$
1240SOUND1,3,100,2
1250NEXT LEX
1260T%=TIME/100
1270FORR%=1 TO 3000:NEXT R%
1280ENDPROC
1290:

1300DEFPROCheading
1310CLS
1320FORR%=1 TO 2
1330PRINTTAB(10);CHR$129;CHR$141;"Alphabet tutor "
1340NEXT R%
1350ENDPROC
1360:

1370DEFPROCnextime
1380PROCheading
1390PRINT  CHR$131;" That time you took ";T%;" seconds."
1400PRINTCHR$131;"and made ";M%;" mistake(s)."
1410PRINT'CHR$134;" Try to do it faster and better this"
1420PRINTCHR$134;"time "
1420PRINTTAB(5,23);"Press SPACE to try again"
1440REPEAT UNTIL GET=32
1450ENDPROC
1460:

1470DEFPROClevel2
1480PROCheading

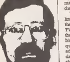
1490IF LEX=1 THEN GOSUB 1590:GOTO 1560
1500PRINT' CHR$134;" Type in the next letter of the"
1510PRINTCHR$134;"alphabet "
1520FORR%=1 TO LEX-1
1530IF R%<14 THEN PRINTTAB(R%*2,12);CHR$(R%+C%)
1540IF R%>13 THEN PRINTTAB((R%-13)*2,14);CHR$(R%+C%)
1550NEXT

1560B$=GET$
1570IF ASC(B$)-C%<>LEX THEN A$="N" ELSE A$="Y"
1580ENDPROC
1590PRINT 'CHR$133;" Type in the first letter of the"
1600PRINTCHR$133;"alphabet
1610RETURN
1620:

1630DEFPROClevel3
1640PROCheading
1650IF P%=1 THEN GOSUB 1670 ELSE GOSUB 1740
1660ENDPROC
1670REM ..before
1680PRINT''CHR$131;  What letter comes";CHR$130;"before"
1690PRINT' TAB(15);CHR$134;CHR$141;CHR$LEX
1700PRINTTAB(15);CHR$134;CHR$141;CHR$LEX
1710B$=GET$
1720IF ASC(B$)<>LEX-1 THEN A$="N" ELSE A$="Y"
1730RETURN

1740REM. .after
1750PRINT''CHR$131;" What letter comes";CHR$130;"after"
1760PRINT  TAB(15);CHR$134;CHR$141;CHR$LEX
1770PRINTTAB(15);CHR$134;CHR$141;CHR$LEX
1780B$=GET$
1790IF ASC(B$)<>LEX+1 THEN A$="N" ELSE A$="Y"
1800RETURN
```

Peek & Poke



Below the line

F Roberts of Hereford, writes.

Q I have a BBC Model B. When using the 32 line modes, they disappear at the bottom and the cursor is not visible at the top of the screen. I can make everything visible by using *TV 255*. Is it not possible to achieve a 32 line display without using this command?

A The loss of the top line of the BBC display is a common problem and is solved by using the *TV 255 command that shifts the whole display down by one line

Your problem of losing lines at the top and bottom of the screen means that your TV is in need of adjustment If the controls are not accessible then you should find a qualified engineer to do the adjustment for you. All standard monitors and TVs should be able to display the full 32 line display from the BBC

Old faithful

R J Woodberry of Farnham, Surrey, writes·

Q I am considering learning machine code on my Spectrum but I am in need of a good, comprehensive book on the subject, I have heard that the Melbourne House publications are usually excellent and that the *Zeus* assembler is one of the best, but which should I buy?

A The old faithful in my list of recommended books is about to hit the pages of PCW again . *Spectrum Machine Language for the Absolute Beginner* is a reasonable introduction to the subject, although it does contain quite a few typographical errors which are frustrating to say the least

The *Zeus* assembler is indeed one of the best Another which you might consider is the Picturesque version, which is also very good

Merging mania

John Porter of Garforth, Leeds, writes

Q The Arcade Addicts Guide in *Popular Computing Weekly* (Vol 4 No 24) is a superb idea, however for me there is a big bug.

I recently bought a Spectrum and the *Soft-Aid* tape. Your guide includes *Pokes* to use on *Pyramid*, *Kokotoni Wilf* and *Jack & Beanstalk* (all on *Soft-Aid*) but I cannot figure out how to get them into the games.

I would dearly love to have unlimited lives in these, so please help

A The majority of Spectrum *Pokes* quoted in magazines are statements that have to be inserted into the short 'Header' program that preceeds the main program on most games

To do this, type *Merge* "", and then *Load* the tape as normal, stopping it immediately after the 'Header' has loaded – (your Spectrum should be saying OK) The program can now be listed – and more importantly – *Edited*. The *Poke* statements can now be inserted within the program, but they must be placed before the final *Randomise Usr* statement.

Now *Run* the program, and start the tape from where you left off The main program should *Load* and *Run* as normal – except of course, you'll have infinite lives (or whatever) during the gamesplay. Good luck!



Unsurpassed

At times, it seems as though this column is turning into an extended plug for the Commodore 64 I must say that, right now, this doesn't seem a bad thing to be With the computer market in such evident disarray – to the extent that even the 64 seems on the point of extinction – it is surely time to reflect on the whole business

From the musical point of view the Commodore remains unsurpassed at its price and certainly second only to the Yamaha CX5M in the computer market as a whole The curious thing is that – CX5M apart – no succeeding machine has come up to the 64's musical standards Even Commodore has produced new generations of computer with less to be said for them musically The manufacturers in general seem uncertain whether to plump for better or cheaper small computers. As a result they have tended to produce unsatisfactory compromises

The problem is clear Businesses tend to write off the capital cost of equipment in a period of two or three years. As has long been the practice with cars, they will upgrade regularly – in fact, as soon as the amortisation period is over. The home owner, on the contrary, buys a computer to last, not to be replaced after a few years A new business computer therefore has a ready made market, while the home computer either has to reach people who've never bought a computer or has to create a demand among existing computer owners

It seems that the manufacturers are not impressed by music as a means of creating that demand While plenty of effort is put into creating better firmware, better peripherals and even better graphics, and perhaps even more effort is put into reducing prices all round, there is precious little evidence of anybody working on music and sound facilities The result is that the best music machine we have, taking everything into account, is – in computer terms – almost a pensioner

The worrying thing, then, is that the market will move ahead – one way or another – and leave the many people who are interested in computer music having to get by with old computers In some ways, this is just another argument for software compatibility. That may be a forlorn issue, but the situation is made worse by the possibility that companies will withdraw or be forced to withdraw from the home market and that good machines like the Commodore 64 will find themselves largely forgotten (except by their owners) without anything better – at least, musically speaking – to replace them.

One reason I make these points is quite simply that the extent of the Commodore 64's contribution to computer music is becoming increasingly obvious, and not just in this country Listening to the computer music competition entries, it was apparent that the decline of the 64 would leave a huge gap in this growing art

Gary Herman

The Music Box is a weekly column with news reviews and readers comments on all aspects of micros and music.

Any readers with experience of computer music making or companies with new product news are invited to write to drop a line explaining what they're doing to Gary Herman, The Music Box, 12-13 Little Newport Street, London WC2R 3LD

Book *Winning at the Races Using Your Computer* **Price** £8.95 **Micro** Any **Supplier** Interface Publications, 9-11 Kensington High Street, London W8 5ND

Every punter's dream is to devise a system that beats the bookies Paul Worden doesn't offer that, but his book demonstrates how to use your micro to increase your edge when gambling Given enough time and effort, he says you can analyse data to show how to exploit the odds

Mr Worden obviously knows his stuff and his style is informal in the extreme, but his programs, based on Microsoft Basic, are all documented. The book's main failing, apart from some sloppy proof-reading and transposed pages, is that it's based on Australian racing

While it's far from a get-rich-quick formula, it provides an insight into how computerised number crunching can discover patterns and turn the odd losing tipple into an educated, winning scheme Be warned though – you'll work hard for your profits

John Minson

Book *Advanced Commodore 64 Basic Revealed* **Price** £9.95 **Micro** Commodore 64 **Supplier** Collins 8 Grafton Street London W1X 3LA.

Where, C64 owners may ask, has this 'Advanced Basic' been hiding all this time? Nick Hampshire's answer is within machine language, for despite that reassuring 'Basic' in the title , to make the most of your Commodore you'll need to understand how the language works and be open to the assembly language routines that will help exploit the ROM.

This is not a book for beginners, progressing as it does from memory architecture and utilisation by Basic, through arithmetic processing and the keywords to an extended Basic package listing, in code, that adds 31 new commands and modifies two others

The book's style is serious and technical, advanced experimenters will find much here to help break the boundaries of Commodore's often criticised Basic.

John Minson

Book *Out of the Inner Circle* **Price** £8.95 **Micro** Any **Supplier** Microsoft Press Penguin Books Ltd., Harmondsworth, Middlesex.

A new type of trespass is taking place through telephone wires and into the hearts of mainframe and mini-computers. Bill Landreth was apprehended by the FBI for becoming just such a 'ghost in the machine' and perhaps not surprisingly his book adopts the 'moral' slant of advising systems operators on safeguards, after all, he is on probation.

Of interest to more than just the poachers and gamekeepers of computer security, though full of tips for both, Landreth's book presents a fascinating picture of a technological revolution which leaves itself, on average, only forty per cent protected in his estimation Written with obvious expertise and in a generally clear style it reveals an insight into this curious obsessive fetishism for hi-tech and its accompanying immorality **John Minson**



Readers' score

Now then, here is a letter from an old friend Michael Banbrook of Streatham who gave us a tip to type *Call 22* on *Sherlock* which we printed as *Call 22* – sorry

There are some things that our readers seem united on when it comes to games, one is that Incentive's *Moon Cresta* is brilliant ("Thank God, Elite didn't get that one," says Mike), another is that Activision's Spectrum versions are awful, and the latest that is emerging is that Elite's games are overrated. "My games to avoid are *The Pyramids* (boring), *Cookie* (dated) and *Kokotoni Wilf* (dreadful – one of the most over hyped games ever)" says Laurence Moran who recommends *JSW*, *Knight Lore* and *Match Day* Iain Gibson of Harogate writes, "Avoid *Fall Guy* (do Elite have any good games?), *Daley's Decathlon* (overrated) and *Blue Thunder* (how was this ever made a Crash Smash – the same goes for *Jungle Trouble*) "Does anyone want to jump to Elite's defence here? I didn't think their games were that bad!

Iain goes on to ask for help with *Backpacker's Guide* "I know how to use the transformation crystals (drop them in the cells next to the large red discs) but how do I use the dynamite? Here are my high scores, without cheating: *Jetpac* 65,385 *Arcadia* 8,447, *Zzoom* 326 060, *Ant Attack* 46 878, *Lunar Jetman* 122,665, *Pyramid* 75,515, *3D Death Chase* 65,773, *Penetrator* 149 320; *Manic Miner* 28,310 and *3D Star Strike* 1,125,600.

Staying with this subject for just a minute, Adrian Byrne of Bracknall has finished *Wilf* using the infinite lives *Poke* we published and putting 0 for the number of lives (the game may look as if it crashes but pressing enter restarts it) Adrian recommends this as the best method for getting to see the secret of the amulet He also has the following scores obtained without *Pokes*: *Knight Lore* 78%, *Pyjamarama* 90% 5,417 paces *Sabrewulf* 84%, *Atic Atac* 99%, *Hunchback* 1,143,100

That's not as good as Robert Lomax of Anglesey who has scored a terrific 3,064,200 on the latter game (witnessed as well) Incidentally, someone write from Bristol with a name I can't read but no, I don't think you can get to the tower in *Hunchback*.

A game that owes a lot to *Atic Atac* is, of course, Bubble Bus's *Wizard's Lair* and Alan Salmon of Bristol has written with some invaluable tips for this "Pick up everything except the skull Keys are needed for square door, rings for round doors and diamonds for pointed doors Flashing goblet gives extra life, flashing helmet protects you for a while Axe pickaxe, etc, give you more weapons, food and drink are for energy, wings speed you up Crown, coin chest, etc, give you gold, scrolls are spells that change gold into useful objects or energy, crosses allow you to pass snakes of the same colour Creatures enter the room through doors, if one comes through a wall it means there is a secret passage you can use Do not stand by an automatic door waiting for it to open because creatures can come through while they are closed. To use the magic lift the levels are – CAIVE (start), HAWLO, CRYPT, DUNGN, VAULT, LIAYR, LYONS"

One game that keeps its popularity over the years is *Chuckie Egg* (I hope you all enjoyed the *Pokes* for filling in the holes in our special issue as much as I did). I have been very lax in not printing these two high scores earlier – Sara Ferring of West Lothian has got a very respectable 395,450, but is beaten by Charlotte Anderson of Dunbar (something in the air up there, I think) who has reached 1,106,040 on level 67, beating her husband George's "mere (sic) 1,082 590. One point spoils it – a million does not register so I am placed quite low in the Hall of Fame"

You think you have troubles, Charlotte – I'm afraid it all pales into insignificance when compared to Allan Harvey who has sent in a witnessed score of 10 million on the Electron version! Allan writes "In answer to Tony Jaques who was having trouble with level 32 First clear as much corn as you can then let a duck get you. Go up to the far left of the first left platform, wait until the duck on the first centre platform has climbed down Jump on to this, up the ladder on to the right and jump on to the second right platform Wait until the duck comes down the ladder and climb up this The duck on the top levels should be climbing, or already up the ladder Jump on to the third middle platform and up the ladder – you should now reach the top. My other high score is 277,835 on *Elite* – rating Dangerous"

On a related subject, Malcolm Lawrence wants to know what the baskew do in *Chuckie Egg 2* Can anyone help? "PS Are AnF taking the mickey out of Sir Clive with the graphics of the C5? The lift when I finally reached it gave me the message 'Out of order'"

Let's finish this week with some quickies Mike Page of Solihull can't escape from *Atic Atac* – yes Mike there are three parts of the key! The third is hard to recognise but looks something like a crown Maximum score on the game is 99%, Mike, so there may be a room you haven't found yet

Mark Sutton of Swansea wants to know if anyone has landed the F-15 in Digital Integration's superb Amstrad version of *Fighter Pilot* and lived to tell the tale Well, I spent some hours trying, Mark, and only managed with two people working the controls – the documentation tells you all the essential limits to stay within, but it is fiendishly hard to keep control of everything The best tip is to rely on the instrumentation as much as possible and keep practising

Finally, here are some more things to type in the high score table in *Dark Star* – C&VG, Keith Campbell, Tony Thing, Joystick Jim, S Brassel, C64, T Bridge, Starblitz, Defanda, Invasion of the body Snatchas, Rommel's Revenge, Pinback, Martin Smith, Motty, Cheesecake, Lynn, Linda, Mash, Robin Meb, QL. These come from Dave Gooch of Rayleigh who also wants tips for "that brilliant Addictive game *Invasion of the Snatchas* – I can only manage 13,800"

Tony Kendle

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Between now and September Tony Kendle will be keeping you up to date on the *Arcade Avenue* page with you who has the scores to beat. Then, in September the top three scorers on each machine will battle it out for a place in the final and the chance to be the first to play our top secret games.

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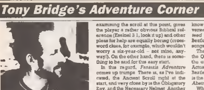
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Tony Bridge's Adventure Corner



Keep the faith

It's good to see that there is a steady flow of software now coming on-stream for the QL. The machine hasn't sold very well, but those of us who took the plunge at the beginning are staying faithful in the hope our faith is rewarded. It is an exasperating machine (those dreaded words *"Bad or Changed medium"* are worse than *"You see a Troll blocking the way, what next?"*!), but the included software is so good that one must persevere (and I mean persevere – I've just spent two hours trying to get a precious set of data to load back in!) Software for we adventurers is rather scarce at the moment – with the exception of Talent Systems', *Zkul* and *West*.

Apart from these two, I haven't seen much else, until this week – S B Software of Diss have sent me their *Fantasia Adventure* to look at.

It's an unfortunate fact that many software houses think that reviewers of adventures need a challenge in their lives, and consequently don't provide maps or solutions with their new releases. I don't have the time required to work all the way through every adventure, so first impressions mean a lot – in the case of *Fantasia Adventure*, first impressions have been so-so. This one follows, as far as I can tell, the usual route – you, the hero, are stuck in "a hostile world of ancient cities, complex cave systems and harsh deserts", as the advert promises. This means that you will find plenty of mazes and quick ways of dying!

The adventure is not in the Infocom class, let us say. Right at the start, you'll find an ancient scroll, just asking to be read or examined. Asking for help, or examining the scroll at this point, gives the player a rather obvious Biblical reference (Ezekiel 3 1, look it up) and other pleas for help are equally boring (crossword clues, for example, which wouldn't worry a six-year-old – not mine, anyway!). On the other hand, there is something to be said for this easy start.

In this regard, *Fantasia Adventure* comes up trumps. There is, as I've indicated, the Ancient Scroll right at the start, and very close by is the Obligatory Key, and the Necessary Helmet. Another step further on is the Lamp, nestling by the Book. All this is standard Middle Earth-ian fare, and the puzzles associated with the objects are not so difficult as to cause terminal frustration. Any gripes I may have concern the QL's innate drawbacks – I'll never understand, for instance, why a computer with such a fast chip should be so achingly slow to process commands. The good old ZX80 was quicker, I'm sure! And the type-ahead keyboard does not reward the impatient player who taps at the keys while processing is going on – if you are a confident typist, of course, several commands may be pre-typed in this way. I was disappointed that no use was made of the Microdrives and random access. Thus, once the adventure is loaded into memory, that's it – it would make for a more interesting game if locations could be loaded in as required from the cartridge. Apart from this, though, and the rather restrictive command structure (*"Get all"*, for example, is impossible, and it's no good typing *"Get the Candle and the Book"*, it just isn't recognised), the adventure is a good traditional romp for the QL and very reasonably priced at just £8.50. Write to S B Software, Nicholas Street, Diss, Norfolk.

Hands up those of you who remember the Beatles. Well, I was never an old hippy, but still I feel nostalgic whenever the emblems and badges of those times are used. It's a temptation, of course, for authors of any kind to use them, and a couple of adventures have come my way which stir the old recollections.

The first is from WCB Software of Derby, who sent me the first two parts of what they call "a Quadrology". *Abstract* and *Contrasts* are the adventures in question, and their origins are plain from the quotations plastered over the cassette insert (handwritten, so I don't know if these will appear on the final version) – *"A splendid time is guaranteed for all"* and *"Nothing is real"*; Beatle fans can provide the titles of the songs that the quotes come from.

The two adventures are written with the Quill (and, given that limitation, it's the usual thing that you might expect.) Actually, although I've stressed the Beatle aspect, another 60s hero, Dr Who, is the main point of reference in the first, *Abstract*.

While it retains the standard Spectrum character set, *Contrasts* has a rather attractive skinny set, unlike the usual BBC-like design.

In the latter adventure, you are still a Time Lord, but this time in Pepperland, along with other characters such as Mingo, McJaffy and a snoring dog. With locations such as Psychoville Manor, and juicy details like Blood running in the Freezer, a splendid time is guaranteed for all here! Write to: WCB Software, 43 Borrowash Road, Spondon, Derby DE2 7QH.

Now to the second adventure for those of us who like to indulge a tear of nostalgia. This is from Mushroom Software, who are on their own admission "the smallest software company in the world, with an output of two programs a year". Their catalogue is varied, consisting of, among others, a Rubik's Cube solver – now they have an adventure, *Software Pirate*. The subject matter is pretty self-explanatory, and features a sort of house-character called Cedric, the hero of most of the other Mushroom programs. It's another Quill'd program, and has no fancy re-designed character sets or flashy screens. It is, however, extremely good value at an amazing £1.49, mail order.

In *Software Pirate* the locations are many, and are easily mapped (though I certainly didn't get to them all, it's not that easy), and are well-populated by many local characters, who can be spoken to (will they divulge clues – I'll find out sooner or later). Objects abound, and many of them are useful, like the radio that can be switched on. As a postscript, Mushroom have asked me to pass along a request to the couple in Solihull who wrote to them regarding help in their first adventure, *Bigtime*. If you're reading this Corner, Solihull, Mushroom would like your address so that they can reply! Mushroom Software, The Plymouth Software Exchange, Plaza Arcade, Bretonside, Plymouth.

This series of articles is designed for novice and experienced Adventurers alike. Each week Tony Bridge will be looking at different Adventures and advising you on some of the problems and pitfalls you can expect to encounter. So if you have an Adventure you want reviewed or if you are stuck in an Adventure you cannot progress any further write to Tony Bridge, Adventure Corner, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD.

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WANTED Casio VL1 swap for BBC Analogue Joystick (pair) and six BBC cassettes Write or send to Derek Scott, Harden Place Harwick Roxburghshire Scotland TD9 7BY

SWAP ELECTRON/DATA Recorder Joystick Interface Quickshot II Joystick, Magazines Books £130 Software for a ZX Spectrum and software or a CBC64 and Software Tel Culcuth (092575) 4460 near Warrington Cheshire Harryl

WANTED Modem for Oric Atmos 48K Tel 0482 887 345 after 6pm

SWAP Spectrum 48K Plus DK Tronics keyboard + tape recorder + 48 original s/w titles for Amstrad 464 with green monitor Te Mr Sullivan Dublin 804403

SWAP AMSTRAD CPC 464 with colour monitor 4 months old for BBC Model B not more than 6 months old with man ual Tel 902 2788 ask Amrel, Mon Fri after 8pm

SWAP my Spectrum Plus in original box and lots of software also with the Kempston Interface and joystick for an Acorn Electron with software Tel 0980 24546

SPECTRUM 16K, 15 games joystick and interface for Dragon 32K or Electron Tel West Houghton 816305

SWAP BBC B + joysticks + graphics Rom + books + cover + £850 s/w Want C64 + C2N player 1541 disc drive + joystick + software etc Tel Richard 01-647 9658

WANTED ATARI 16k 600XL penpal to swap programs tips etc Write to Mark Taylor Meadowside Forcett Richmond North Yorkshire DL11 7RY

WANTED QL penpals to swap M/C hints and tips Write to Flat D 311 Brixton Road London SW8 7BU

BARGAIN ONLY £130 for a 48K Spectrum new tape recorder books 20 cassettes and over 150 computer mags or swap for a Sinclair pocket TV and £50 Tel 0526 524264 can deliver

SWAP Dragon 32 + joysticks + software for ZX interface 1 + Microdrive Tel John 061 792 8122

SWAP PHILIPS LAZERVISION plus 15 Laser discs for Spectrum Plus with Microdrives or sell £130 Write to D Scot 280 Harden Place Hawick Roxborough Scotland

SWAP CBM 64 disc drive 1 C2N for BBC B + Cassette player Tel Fleet (02514) 3692 after 4 30pm or sell the lot for £245

WANTED BBC B Preferably disc filing system also twin disc drive Tel Peterborough 8757 4232

BBC MICRO with S/W 98s mags micro cover twin joysticks Swap Amstrad CPC464 with colour monitor Tel Aldershot 319360 George after 6pm

SWAP ANYTHING from E Europe for a cheap micro software + basic books Spectrum or any used unit in perfect condition welcome I have no chance for micro buy Help to a made programmer please Josef Sesande CSLA 614/26 Sred 41108 Czechoslovakia

SWAP SHARP GF888 double cassette 10 band graphic equaliser 40 watts + Sony (Beta) video SL C9UB 22 tapes for BBCB + disc drive + games Phone Godstone 843777 Mon-Fri after 5pm weekends any time

TWO DRAGON 32s for sale with quality s/w Also Wanted Dragon hardware software particularly Alldream Superchoc Cartridges and Tahoy/Dragon machine code convertor Write Ias 37 Harehills Ave Leeds LS8 4EX

WANTED 48K warned. No issue one's Any reasonable offer considered Tel Marske 8 (0625) 29360

Diary

Event	Dates	Venue	Admission	Organisers
Third Official Acorn User Exhibition	July 25 Trade 10.00am 1.00pm July 26 – 28	Barbican Centre London EC2	£3 adults £2 children	Computer Marketplace (Exhibitions) Ltd 01 930 1612
The 90s Trend 85	Aug 11	Burnley General Hospital	60p adults 30p children	Future Computer Services 0282 93321
Personal Computer World Show	September 4-8	Olympia London	£2.00	Montbuild 01-486 1951
Electron and BBC Micro User Show	September 27-29	UMIST Manchester	£3.00 adults £2.00 children	Database Publications 061 456 8383

ADVENTURE HELPLINE

Message from Redrounde on Amstrad I can't get any further when reaching panel/square plate or glass pedestal. Mr W Prime 130 Hazel Ave Bury Lancs

Mission Impossible on Vic 20 Can't open white yellow or blue door. Paul Bearer 20 Hill Green Pitsea, Basildon Essex

Castle of Terror on C64. How do I get back out of the secret chamber and how do I free the girl? Peter Dent, 11 Ravensdale St Wear Seaham, Co Durham.

Mission 1 Project Volcano on Amstrad. How do I get into the lift past the lift droid? Charles Taylor Meadowside Forcett Richmond W Yorks

Eureka! How do I get past the sun shooting man in prehistoric adventure Torbjorn Troltertyz N 6464 Eod at Romsdal Norway

Jewels of Babylon on Amstrad How do you deal with the crocodile in the swamp, or the body of the sailor? John and Linda Marshall, 3 Silvermallee Ct Kalmaiem 6211 Perth W Australia

Urban Upstart on Spectrum. How do you get past the officer at the airport? Where is the book? Johnathan Hancock 371 Newton Rd Lowton, Warrington Cheshire

Ring of Power on C64. What is the password to gain access to the palace? K Ryan Rivendell, Church Rd, Pontnewydd, Cwmbran Gwent

Pirate Cove on Vic 20 How do I get out of the London flat? Stephen Ryan Old Bridgend Inn, Pontnewydd Cwmbran, Gwent.

Time Lords on Amstrad CPC 464. How do you get the keys from the shed in scene 1? (I with a shovel how do you get that?) Peter V Degorgio, 75 Main Street St Julian s Malta GC

Snowball on Amstrad. How do I get off the bottom layer? Can anybody explain what happens after typing 'p'? Andrew Walton, Fulow Hill Cottage Over Anderley Macclesfield Cheshire

Castle Quest on BBC I have found the wand. Now what do I do with it? P Kowalczuk 89 Chilcan St, Cheetham Hill Manchester 8

Spiderman on Spectrum. How do I get Bio Gem and how can I defeat Electro and Doc Octopus? Andreas Schroedwinke Dresdenerstr 68a 4050 Moenchengladbach 1 Germany

Mountains of Ket on Spectrum. How do I cross the ravine or enter caves beyond lake? Bill Stansbold 18 Snowdeley Green Wheaton Aston Stafford ST19 9QE

Starcross and Infidel on C64. How do you get the red rod from ratant's nest? How do you find the pyramid in Infidel? Michelangelo Pignani, 3 Caroline Rd Llandudno Gwynedd

Jewels of Babylon on Amstrad. How do I find the key to the door in the dusty corridor? How do I get over the bridge? Richard Charters 117 Scale Cote Rd, Upperby Carlisle

Espionage Island on Spectrum. Where are the cops? Koen Hartsuiker Elsengaard 47 Beziel Holland

System 15000 on Spectrum. How do you get your file recognised by the Solcra Securities system? T Williams, 81 Britain Dr Grantham Lincs

Eye of Bain on Spectrum. How do you get past the black beast get things from the tent and cross the ravine? David Ledbury 82 Wealdstone Woodside Telford.

Doomdark's Revenge on Spectrum. Where is Morkin, and how do you like him? Where do you find the towns and spells? David Ledbury 82 Wealdstone Woodside Telford.

Inca Curse on Spectrum. How do I get past fire and the panelled room? Any other advice welcomed. David Ledbury 82 Wealdstone Woodside, Telford.

System 15000 on Spectrum. Does anybody know what the Midminster account number is? Tony Scrivener, 14 Upton Dene Grange Road Sutton, Surrey

Mountains of Ket on Spectrum. Can anybody give me directions from the scarred tunnel to the hut? Stephen Pollock, 145 Peveril Avenue Glasgow

Eureka on Commodore 64. Part 2 What are in the catacombs? What do I do with the chicken and the egg. Part 3 What tune do I play to crack the crystal and how do I make the lift move? Part 4 I have the photo and the blank ID card. How do I make a valid ID card? Richard Kane 150 Station Road, Leigh-on Sea Essex

Zodiac on Oric. What do I do in the cave? How do I open the cell. I can't find the key? A goodsman 73 Fellows Court Weymouth Terrace Hackney London E2

The Sorceror of Claymorgue Castle on Commodore 64. I cannot get up on to the battlements and I keep getting killed in the ballroom. Also the stone door won't open. Can anybody help? S D Sharp, Lodge of Milton & Castle Bower 55 The Street Ashtead, Surrey

Sherlock on Spectrum. How do you get Inspector Lestrade to arrest Mrs Jones? Neil Harrison 27 Landrick Close View Bessacarr Doncaster S Yorks

Circus on spectrum. How do you open the wagon door? Where are the slippers and can you open the chest? John Teal 78 Greenwood Crescent Cotbridge Lanarkshire

Twin Kingdom Valley on Spectrum. How do you kill the dragon in the castle? Christopher Hallam 43 Duke Street Cotmanhay Ilkeston, Derbyshire

System 15000 on BBC. How do you access further to Midminster Bank Boon or Southedge? Any help at all needed. Paul Tang 21 Main Street Branston, Burton-on Trent Staffs (Tel (0283) 95636)

Lords of Midnight on Commodore. Tips wanted on beating Doomdark by use of armies. S D Christian, 45 Wallgate Road, Liverpool 86 (Tel 051 722 7052)

Castle Quest on BBC. How do you get out of the dungeon and get past the spider? Guy Nash Rose Hill Lodge, Rose Hill, Dorking Surrey

Castle of Terror on Commodore 64. Any help appreciated. Gavin Day 57 Rossall Road Cleveleys nr Blackpool Lancs

Colditz on Spectrum. How do I get past the bayonet and how do I free the POW. F Bell 2 School House Well close Square London E1 (Tel. 01 709 0128)

Eric the Viking on BBC. How do I get the things from the eagle's nest? How do you get the amulet? What are the lera and spece for? M Rewarth 2 Wendview Drive Stoke, nr Aylesbury Bucks

The Hobbit on Commodore 64. How do I get the past the bulbous eyes? How do I get the Barrel from the wine room to float down the river safely? Richard Kane 150 Station Road, Leigh-on Sea Essex

Eric the Viking on Spectrum. How do you get the feather out of the dragon's nest? John rendle 26 Western Road Aldershot Hants

Eureka on Spectrum. Part 2 What number opens the door? I can help with Parts 1 2 and 4 Ian Sumter, 10 All Saints Close Springfield, Chelmsford, Essex

Eureka on Spectrum. How do I greet Nero and how do I get into the plane? I R McAdam, 5 Bridge Close Terleggan Newquay Cornwall.

Hampstead on Spectrum. How do you get past the butler in the mansion in St John's Wood? Tanveer [illegible] 3 Yateley Road, Edgbaston, Birmingham B15

Charts

Amstrad

1	(1)	Knight Lore	(Ultimate)	£9.95
2	(2)	Alien 8	(Ultimate)	£9.95
3	(3)	Minder	(DK'Tronics)	£9.95
4	(5)	Sorcery	(Virgin)	£9.95
5	(4)	Ghostbusters	(Activision)	£10.99
6	(6)	Confusion	(Incentive)	£6.95
7	(10)	Daley Thompson's Decathlon	(Ocean)	£8.95
8	(–)	Ghettoblaster	(Virgin)	£8.95
9	(7)	Combat Lynx	(Durrell)	£8.95
10	(–)	Fighter Pilot	(Digital Integration)	£8.95

Bubblers:

3D Star Strike	(Real Time)	£8.95
Roland in Space	(Amsoft)	£8.95

Atari

1	(5)	Decathlon	(Activision)	£9.99
2	(3)	Miner 2049 er	(US Gold)	£12.95
3	(1)	Bruce Lee	(Datasoft/US Gold)	£7.50
4	(8)	Kissing Kousins	(English Software)	£9.95
5	(2)	Ghostbusters	(Activision)	£14.99
6	(7)	Beachead	(Access/US Gold)	£14.95
7	(4)	F15 Strike Eagle	(Microprose/US Gold)	£14.95
8	(9)	Smash Hits 3	(English Software)	£14.95
9	(–)	Quasimodo	(Activision)	£9.99
10	(6)	Drop Zone	(US Gold)	£9.95

Bubblers:

Mr Do	(Datasoft/US Gold)	£9.95
Smash Hits 2	(English Software)	£14.95

BBC

1	(1)	Revs	(Acornsoft)	£14.95
2	(2)	Alien 8	(Ultimate)	£9.95
3	(2)	Atic Atac	(Ultimate)	£7.95
4	(6)	Knight Lore	(Ultimate)	£9.95
5	(2)	Repton	(Superior)	£9.95
6	(3)	Elite	(Acornsoft)	£14.95
7	(7)	Magic Mushrooms	(Acornsoft)	£12.95
8	(3)	Combat Lynx	(Durell)	£8.95
9	(–)	Castle Quest	(Micropower)	£9.95
10	(9)	Wizadore	(Imagine)	£7.95

Bubblers:

Gremlins	(Adventure International)	£9.95
Battlefields	(BBC Publications)	£9.95

Commodore 64

1	(2)	Elite	(Firebird)	£17.95
2	(3)	Way of the Exploding Fist	(Melbourne House)	£9.95
3	(1)	Dambusters	(Sydney/US Gold)	£9.95
4	(3)	Shadowfire	(Denton/Beyond)	£9.95
5	(5)	Soft Aid	(Soft Aid)	£4.99
6	(–)	Drop Zone	(Microprose/US Gold)	£9.95
7	(8)	Jet Set Willy 2	(Software Projects)	£7.95
8	(4)	Pitstop II	(Epyx/US Gold)	£9.95
9	(6)	International Basketball	(Commodore)	£9.99
10	(–)	Theatre Europe	(PSS)	£9.95

Bubblers:

View to a Kill	(Domark)	£10.99
Rocky Horror Show	(CRL)	£8.95

Spectrum

1	(1)	Soft Aid	(Beyond)	£4.99
2	(2)	Jet Set Willy 2	(Software Projects)	£7.95
3	(3)	Shadowfire	(Beyond)	£9.95
4	(5)	Nodes of Yesod	(Odin)	£9.95
5	(7)	Dun Darach	(Gargoyle Games)	£9.95
6	(–)	Cauldron	(Palace)	£7.99
7	(3)	View to a Kill	(Domark)	£10.99
8	(4)	Starion	(Melbourne House)	£7.95
9	(–)	Spy vs Spy	(Beyond)	£9.95
10	(9)	Tapper	(Sega/US Gold)	£7.95

Bubblers:

Rocky Horror Show	(CRL)	£8.95
Herbert's Dummy Run	(Mikro-Gen)	£9.95

All figures compiled by Ram/C

Top Twenty

1	(3)	Elite *(BBC/Electron/C64)*	Firebird/Acornsoft
2	(1)	Soft Aid *(Spectrum/C64)*	Various Artists
3	(20)	Way of the Exploding Fist *(C64)*	Melbourne House
4	(8)	Jet Set Willy 2 *(Spectrum/C64)*	Software Projects
5	(2)	Dambusters *(C64)*	Sydney/US Gold
6	(12)	View to a Kill *(Spectrum/C64)*	Domark
7	(7)	Knight Lore *(Spectrum/BBC/Amstrad)*	Ultimate
8	(18)	Cauldron *(Spectrum/C64)*	Palace
9	(13)	Rocky Horror Show *(Spectrum/C64)*	CRL
10	(6)	Alien 8 *(Spectrum/BBC/Amstrad)*	Ultimate
11	(4)	Shadowfire *(Spectrum/C64)*	Beyond
12	(9)	Herbert's Dummy Run *(Spectrum/C64)*	Mikro-Gen
13	(5)	Revs *(BBC)*	Acornsoft
14	(–)	Nodes of Yesod *(Spectrum)*	Odin
15	(10)	Dun Darach *(Spectrum)*	Gargoyle Games
16	(11)	Starion *(Spectrum)*	Melbourne House
17	(14)	Spy Hunter *(Spectrum/C64)*	Sega/US Gold
18	(15)	Tapper *(Spectrum/C64)*	Sega/US Gold
19	(16)	Minder *(Spectrum/C64/Amstrad/MSX)*	DK'Tronics
20	(–)	Pitstop 2 *(C64)*	Epyx/US Gold

Figures compiled by Ram/C

Readers' Chart No 31

1	(1)	Soft Aid (Spectrum/C64)	Various Artists
2	(–)	Elite (C64/BBC/Electron)	Firebird/Acornsoft
3	(2)	Knight Lore (Spectrum, BBC, Amstrad)	Ultimate
4	(3)	Confuzion (Spectrum/Amstrad)	Incentive
5	(–)	Rocky Horror Show (Spectrum)	CRL
6	(4)	Gyron (Spectrum)	Firebird
7	(7)	Everyone's a Wally (Spectrum/C64)	Mikro-Gen
8	(8)	Minder (Spectrum/Amstrad)	DK Tronics
9	(5)	Alien 8 (Spectrum/BBC/Amstrad)	Ultimate
10	(7)	Starion (Spectrum)	Melbourne House

Winning phrase No 31, "I often drink 8 light ales" from J S Russell of Fareham, Hants who receives £25. Other who came close include "Giant Six fell – HO!" from Bruce Greig of Exeter, and "Is he so old golfer?" from S G Young of Garrowhill, Glasgow

Now voting on week 33 – £25 to win

Each week *Popular* is compiling its own special software top ten chart – compiled by YOU

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever – but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's chart, published above.

You can still vote in the chart without making up a slogan – but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 33 closes at 2pm on Wednesday July 19 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name .... **My top 3: Voting Week 33**

Address .... 1. ....

.... 2. ....

.... 3. ....

My phrase is: ....

New Releases



WITCHLESS

Metabolis is a Sorcery-style program from Gremlin Graphics – its first game title for the Spectrum in quite a long while. It has the immediate virtue of being a *Sorcery*-style arcade adventure that does not feature spells and witches. It also looks quite good on screen.

The plot involves your having to free the world from the grasp of the Kremlin, who are some sort of alien something or others that happen to have the same name as the famous centre of the Red menace. Humanity generally has been turned into assorted mice and birds, and you have been part transformed so that you swing uncontrollably from bird to man. This misfortune, though, helps you seek out the serum that will stop your transition. Next you blow up the Kremlin with four pieces of nuclear fuel and save the world. The usual stuff.

It's multiscreen, lots of sprites wandering about in the shape of wacky animals, flickering things to collect – not an original bone in its body.

On the other hand it looks good, the design of the sprites is amusing (although some of the backgrounds look curiously simple and drab) and it seems to hang together as a game.

Program *Metabolis*
Price *£6.95*
Micro *Spectrum*
Supplies *Gremlin Graphics*
Alpha House
10 Carver Street
Sheffield
S1 4FS

CHALLENGING

Crystal Theft is a very complex text adventure from Wicca Soft.

Complex in several ways, first it can handle very long sentences like 'Go south then take the key and climb the rope', second, the structure of the game is devious: it's in real time and many of the puzzles must be solved within a time limit. Finally, it's very, very hard indeed.

I hate summarising the plots of adventure games, but here's a quick jaunt through the salient points of this one: Vegan Wars, technologically superior baddies, but crack Intruder commando units from Earth, flaw in Vegan's dictatorship (controlled by priesthood), weak strategy, can Earth's defences repulse invaders? Can you retrieve the faster than light crystal from the Vegan temple?

The screen layout is helpful – description of location, inventory, computer response and your input are divided into different windows. I'm not sure about the blue text on green background though.

Reading through a reviewer's cheat sheet reveals some of the subtleties to be found later on in the game. I can't wait until I find out what 'Things which get lost can generally be found again when you get fed up arguing philosophy' means.

An excellent and challenging text adventure.

Program *Crystal Theft*
Price *£7.95*
Micro *Amstrad*
Supplies *Wicca Soft*
107 Bollington Road
Bollington
Nr Macclesfield
Cheshire
SK10 5EL

ALL GRAPHICS

Glass from Quicksilva has been getting some excellent reviews recently. It's not difficult to see why; graphically it's fairly spectacular.

The problem is, though, that graphics alone isn't enough and I really don't think there's much of a game here.

Good evidence of lack of real plot ideas is when a game is divided into several sections – *Glass* has lots of sections.

The plot has you blasting through enemy defences in an attempt to reach the city strongholds. This involves lots of big alien sprites on a *Buck Rogers* style 'moving staircase' background.

Later sections of the game feature some beautifully designed and vast alien spaceships – it's really very pretty.

Really though this is only a series of pretty screens with a lot of blasting. It lacks a sense of purpose and I don't find the graphics enough to hold my attention through more than a couple of plays. Still the programmer(s) is/are obviously hot stuff. I look forward to other games.

Program *Glass*
Price *£7.95*
Micro *Spectrum*
Supplies *Quicksilva*
Liberty House
222 Regent Street
London W1R 7DR

ON THE HOP

Buck Rogers was one of the classic arcade games. The Commodore version was also fairly popular and now US Gold have converted it to the Spectrum.

The conversion is actually fairly good. The 3D effect has been achieved convincingly with hardly a colour clash problem in sight. For those unfamiliar with the game it is a zoom around between zapping electron posts blasting against aliens that not only match you zoom for zoom but, most devastatingly of all, hop.

It's a high speed affair and really my only objection to it is that this kind of game is dreadfully old hat.

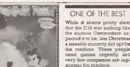
It's sad how quickly last year's (well, a couple of years back) epics grow out of date. If you're already a fan of the game this is a good Spectrum version with little competition. I wouldn't recommend it otherwise though.

Program *Buck Rogers*
Price *£9.95*
Micro *Spectrum*
Supplies *US Gold*
Unit 10
Parkway Industrial Estate
Birmingham B7
4LY

Compiled by Graham Taylor

New Releases is designed to let people know what software is coming on the market. If you have a new game or utility which you are about to release send a copy and accompanying details to New Releases, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD.

New Releases



LETTERS FROM MAX

Beyond is rather surprisingly leaping on to the educational software bandwagon

On perusal, I would have thought the program puts more emphasis on learning one's way around the keyboard, and identifying sounds, than the alphabet itself Divided into four sections parent and child are led through the alphabet by Max, a sort of spacehopper (remember spacehoppers?) with legs Max does appropriate actions for each letter, though he bends his antennae for A

Now, on to *Press a Letter*, where Max enacts the words corresponding to child's key press

Thirdly, Max hauls each letter on to the screen.

Once the child is familiar with the program the fourth section provides a letter quiz with Max enacting his routines and the child pressing the right key

Program *Romper Room*
Price *£9 95*
Micro *Commodore 64*
Supplier *Beyond*
153, Farringdon Road
London EC1R 3AD

ONE OF THE BEST

While it seems pretty clear that the C16 was nothing like the success Commodore expected it to be, lets Christmas a sizeable minority did opt for the machine Those people need games urgently and very few companies are supporting the machine

Of the companies that are backing the C16, Gremlin Graphics is emerging as the company taking the most trouble over the end result Sword of Destiny might even have made a few non C16 owners pretty jealous

Basically, you slash away at all sorts of ghostly and ghoulish sprites, collecting the ubiquitous flashing objects and travelling around by a mixture of bouncing (like in yoghurt adverts) and jumping into warm air vents which lift you skywards The graphics are big and detailed and by C16 standards this is one of the best yet.

Program *Sword of Destiny*
Price *£6.95*
Micro *C16*
Supplier *Gremlin Graphics*
Alpha House
10 Carver Street
Sheffield
S1 4FS

SOPHISTICATED

Atlantis Software was responsible for perhaps my favourite card game simulation, Eights, which also happened to be a budget price item Now the same programmer and company have issued Chinese Patience, like Eights a card game seldom covered on micros

Chinese Patience is one of the few forms of the game which can be played competitively – you challenge the computer to get rid of its cards first The rules are essentially simple there are nine piles, eight 'general' ones and the opponent's playing hand onto which cards may be discarded The piles are grouped into different rules one section must have cards ascending of the same suit, another group must be descending cards of alternate colours You may discard a card on to your opponent's pile if it is the same suit and one number above or below it

You may keep taking and discarding cards as long as possible – when you can't go, it is the other player's turn. It's actually a very sophisticated game much thought is needed in deciding where to place the cards and, consequently, that the computer plays very well is a tribute to some very ingenious machine intelligence

The screen layout is as neat as it could be, given the need to display so many different and often lengthy piles At £1 99 this is a fine successor to Eights

Program *Chinese Patience*
Price *£1 99*
Micro *Spectrum*
Supplier *Atlantis*
19 Prebend Street
London
N1 8PF

UP TO PAR

I've always thought that golf simulations don't get the attention they deserve from programmers – you tend to end up with a result that is often in Basic, features matchstick men and simple graphics and generally lacks the professional touch. On the other hand I've often found that presentation excluded, golf works well as an entertaining computer simulation

Now we come to Handicap Golf on the Amstrad from CRL and it illustrates some of the points made above While the graphics are simple with dots for ball and hole and a 'Saint'-like matchstick man for the golfer the game is a lot of fun Holes are simply drawn, a few trees here and there, simple yellow for bunkers and so on – each one extends over several screens so there are options to preview each before you slice away

You have a wide selection of golf clubs, both woods and irons, from which to choose and must take into account not only the power you give to the hit and direction but the wind power and direction as well. When you make it to the hole you get a close up and a little cursor that must be aligned with ball and hole It's

This Week

Program	*Type*	*Micro*	*Price*	*Supplier*
Beach Head	Arc	BBC	£9.95	US Gold
Chuckie Egg 2	Arc	Amstrad	£7.90	A+F
Strip Poker	S	Atari	£9 95	US Gold
Chuckie Egg 2	Arc	Commodore 64	£7 90	A+F
Mig Alley	Arc	Commodore 64	£9 95	US Gold
Skyfox	Arc	Commodore 64	£12.95	Ariolasoft
Supermouse	Ut	Einstein	£100	Bubble Bus
Dwarfs Domain	Ad	Spectrum	£2.95	Sigma Soft
A View to a Kill	Arc	Spectrum	£10 95	Domark
Buck Rogers	Arc	Spectrum	£7 95	US Gold
Glass	Arc	Spectrum	£7 95	Quicksilva
Hypetron	Arc	Spectrum	£1 99	Sigma Soft
Laser Shoot	Arc	Spectrum	£1 95	Sigma Soft
Metabolis	Arc	Spectrum	£6 95	Gremlin Graphic
Spy vs Spy	Arc	Spectrum	£9 95	Beyond
Gravity	Ed	Spectrum	£30	Anima
Magnetic Bottle	Ed	Spectrum	£15	Anima
Relativity	Ed	Spectrum	£30	Anima
Rotation	Ed	Spectrum	£15	Anima
Chinese Patience	S	Spectrum	£1 95	Atlantis
One on One	S	Spectrum	£5 95	Ariolasoft
Character Set Coll	Ut	Spectrum	£4	Sigma Soft
Double Height Print	Ut	Spectrum	£3	Sigma Soft

New Releases

Pick of the week

NEAR PERFECT

Beyonds' *Spy vs Spy*, to my mind one of the most addictive Commodore 64 games of the year, has now been converted to the Spectrum. What's more I think it's as perfect a conversion as there could possibly be – it looks exactly the same as the Commodore original.

The success of the game is, I think, the way it completely captures the atmosphere of the original *Mad* cartoons – the excellent graphics ensure a superb graphical duplication but it's more than that. The cartoons are full of sniggering malace and undisguised viciousness, bombs are black canonballs with a fuse on the top and behind every door lurks a bucket of water.

The game has exactly this flavour – the computer display is in two sections each showing the current location of their the black or white spy. As you move your spy from room to room so the appropriate display changes. The nominal objective of the game is to collect some secret plans and escape with them. In fact though the real motivation to play the game is to blow up the other spy. Unlike normal arcade games where complete obliteration is zap/pow/dissolve, in *Spy vs Spy* it is deliciously slow.

Each spy has a selection of traps and weapons – bombs that can be affixed to desks and drawers, buckets of water to put over doors and so on. The idea is that you set up traps and watch gloatingly as the other spy in the process of looking for plans accidentally triggers them – then blam! The spy explodes and in skeletal form ascends to heaven. It's hilarious – the only way to avoid the traps is to keep a careful watch on what the enemy is doing, so you could argue that there's quite a bit of skill in it too. Buy this game.

Program *Spy vs Spy*
Price £9 95
Micro Spectrum
Supplier Beyond
Lector Court
153 Farringdon
Road
London
ECIR 3AD

all quite entertaining, but I can't help thinking that if I can get in under par every time it must be pretty easy.

Program *Handicap Golf*
Price *£7 95*
Micro *Amstrad*
Supplies *CRL*
140 Whitechapel
Road
London E1

GREAT GRAPHICS

Answering the critics who have scorned Ariolasoft's American imports for being out of date, the company is rush releasing Electronic Arts' *Skyfox* for the Commodore 64 in mid July, just six weeks or so after its US launch for the Commodore, although it's been kicking around on the Apple over there for some time.

Skyfox is an air combat game – basically it's a question of getting your plane in the sky and than bombing everything that moves. What lifts it above the level of similar scenarios is the superb quality of the graphics.

You are the pilot – with a bewildering number of permutations of skill level and type of war you wish to fight in. You peer out at the landscape through a remarkably realistic representation of your cockpit, these really are some of the most stunning graphics ever. The ground appears at first to be spattered with molehills which on closer inspection turn out to be surprisingly detailed animations of tanks – all awaiting obliteration.

You can graduate from cadet to 'ace of the base' (not sure about authenticity of the jargon here) using continuous laser cannons or heat seeking missiles – or even the boring old guided variety – in a number of battles ranging from a mere spat (training mission) to 'massive onslaught'. Great graphic details and destruction, what more do you need!

If you're into quality shoot 'em ups and dogfight simulations this should do you well, and at £12.95 on disc and £9.95 cassette it's actually one of the better value for money American imports.

Program *Skyfox*
Price *£12 95 (disc)*
£9 95 (cassette – out in August)
Micro *Commodore 64*
Supplies *Ariolasoft*
19 Palace St
London SW1

SPRITELY

One on One was a basketball game issued first on the Commodore 64 in America where it did well, then imported by Ariolasoft and issued here, where I think it did less well. Now it's been converted to the Spectrum.

The game pits two basketball players against each other, the focus is all on the basket end of the court and the idea is that the simulation is very accurate indeed. The players get tired and are even individually programmed to behave slightly differently.

However the problem with the game is that you never really get a chance to test out the 'realism' of the simulation aspect, simply because the graphics are so poor and characterless. What you get are two small flickery sprites – it's difficult to get any great sense of character and animation.

Program *One on One*
Price *£8 95*
Micro *Spectrum 48K*
Supplies *Ariolasoft*
Suite 105/106
Asphalte House
Palace Street
London SW1E 5HS

This Week

Games Aid	Ut	Spectrum	£6	Sigma Soft
Proportional Chars	Ut	Spectrum	£3	Sigma Soft
Sound FX Mark II	Ut	Spectrum	£3	Sigma Soft
Speech Synthesis	Ut	Spectrum	£3	Sigma Soft
Speedy Load/Save	Ut	Spectrum	£4.50	Sigma Soft
The Artists Comp	Ut	Spectrum	£3 99	MA Soft

Key **Ad** – adventure **S** – strategy-simulation
Arc – arcade **Ut** Utility
Ed – education

A + F Canal Side Industrial Estate Woodbine Street East Rochdale OL16 5LB 0706 341111 **Anime**, 23 Crawley Avenue, Hebburn Tyne & Wear NE31 2LT 0632 832825 **Atlantis** 19 Prebend Street, London N1 8PF 01-226 6703 **Beyond** Lector Court 153 Farringdon Road, London EC1R 3AD 01-837 2899 **Bubble Bus** 87 High Street, Tonbridge Kent TN9 1RX 0732 355962 **Domark** 204 Worple Road London SW20 8PN 01-947 5624 **Gremlin Graphic** Alpha House 10 Carver Street, Sheffield S1 4FS 0742 753432 **MA Soft** 52 Aston Avenue Winsford Cheshire CW7 2HX **Quicksilva** Palmerston Park House, 13 Palmerston Road Southampton Hampshire SO1 1LL 0703 20169 **Sigma Soft** 8 Pine Dale Rainford Merseyside WA11 8DP **US Gold**, Unit 10 The Parkway Ind Centre Heneage Street Birmingham B7 4LY 021 359 3020

Little brother

Possibly one of the worse aspects of 1984, the year of Big Brother, was the film of the book *1984*.

The film took the standard approach towards the book, which is that George Orwell was worried principally about a totalitarian prying state

There are many worries concerning Big Brother, where for BB we can read the vast all-seeing computer database (choose your own poison, your own pet totalitarian organisation) The scenario is this soon every part of our life will be documented and stored away on a set of computers This means so the argument runs, that to find out everything about a certain person,all that will be necessary is to connect the computers to cross-check information

For computer to talk to computer, assuming that the information is not stored on one vast machine (very open to industrial action, system crashes, or bombs), then there has to be some means by which the computers can talk. To talk requires a communication channel, and all communication channels can be overheard As they said in the war "Careless talk costs lives" If we have a distributed communication system then there are distributed opportunities for access

The opportunities to overhear a computer conversation are increasing in frequency if we have a system with many users who access the machine by telephone In the gloriously impractical and much over used "we will all work at home at terminals connected to a central computer" syndrome, then the possibilities for illegal intrusion by professional intruders as well as amateurs are greatly increased. The computer may not be a high security system with personal files on individuals but even so intrusion for commercial espionage cannot be ruled out

It is difficult to protect any installation completely and the problem is not just LB (Little Brother, the hacker) but FB (Foreign Brother, the spy) There is one way in which any installation can be totally protected from illegal conversations (by use of the standard communication channels), that is, to make the computer a deaf mute The only computer safe from talking to LB or FB is the computer which never communicates with another A computer which never talks to another is in dangerous isolation, because when it is sick or injured it cannot operate successfully

An integrated network of computers sharing information is subject to the attentions of both LB and FB, whereas the isolated computer installation is subject to sabotage from FB, and industrial action from its employees

One reason why sensitive information (such as DHSS records) are being stored on separate computers is this worry about industrial action By networking these computers the opportunities for electronic intrusion become greater No computer is completely safe from the attentions of a determined and knowledgeable little brother

Orwell's all-seeing surveillance system was tied into a concerted attempt to change people's attitudes by changing their language The psychological implications of the effects of language on people's conceptual structures were – I think – far more important for Orwell than the all-seeing pervasiveness of BB but as ever, the message became lost in the medium.

1984 (the book) was a great success but the novel was not the best medium for expressing Orwell's message In *1984* the all-seeing BB was far more interesting and had a greater impact on the readership than the subtle message of indoctrination by changing the language

Personally, I am more worried about political doubletalk than I am about BB.

Boris Allan

Sharp practice

Puzzle No 165

You may remember Sammy Sharp, the well-known trickster If you do, you will no doubt be relieved to hear that as a result of his last escapade he is spending a few months as a guest of Her Majesty!

However, let me warn you, lest you be lulled into a sense of false security, that his sister Samantha, who is every bit as wily as her brother, is still to be found operating illegal betting games at the local racecourses One of her favourite gambles is as follows

The punter is asked to shuffle a standard deck of playing cards, and he is asked to deal three cards face up onto the table If the product of these cards is an exact multiple of their sum then the punter wins, otherwise he loses

How would you estimate the chances of winning with this bet? (Ace = 1, and Jack, Queen, and King count as 11 12, and 13 respectively)

```
10 FOR A=100 TO 316
20 FOR C=10 TO 31
30 P=A*A:Q=C*C*2:R=Q*A:S=(A+C)*(A+C)
40 A$=STR$(A):C$=STR$(C):P$=STR$(P):Q$=STR$(Q)
   :R$=STR$(R):S$=STR$(S)
50 IF MID$(S$,1,1)=MID$(Q$,1,1)AND MID$(Q$,2,1
   )=MID$(A$,3,1)AND MID$(S$,3,1)=MID$(P$,3,1)
   AND MID$(R$,2,1)=MID$(S$,5,1)AND MID$(C$,1,
   1)=MID$(P$,4,1) THEN PRINT A,C
60 NEXT C
70 NEXT A
```

Solution to Puzzle 160

Answer

A = 218, B = 57 C = 24, D = 17

From the number of spaces in the grid we can determine that the value of A is in the range 100 to 316 (6 across), and C is in the range 10 to 31 (2 across)

The program gives values in the ranges to A and C by means of two *For Next* loops, the values of 2, 4, 6 and 8 across, and 2 and 7 down can be calculated. Line 50 checks to see if the various digits that interlock in the grid are the same

This then prints out the two values of 218 and 24 for A and C respectively Once this has been done the values of B and D can then be easily found by a similar method.

Winner of Puzzle 160

The winner is Johan Bosschem of Gent, Belgium, who receives £10

Rules

The closing date of Puzzle 165 is July 31

The Hackers

How's the benchtesting going?
Ok.
SNAP!
CRUNCH
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So much for the Snibbins Tuf-table ...wheel in the next bench.
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